

**The Annual Report
of the
Recycling Public Advisory Council**



**Presented to the
Honorable Jack Markell, Governor of Delaware
and the
147th Delaware General Assembly**

**November 2013
(Twelfth Edition)**

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The Annual Report of the Recycling Public Advisory Council

November 2013 (Twelfth Edition)

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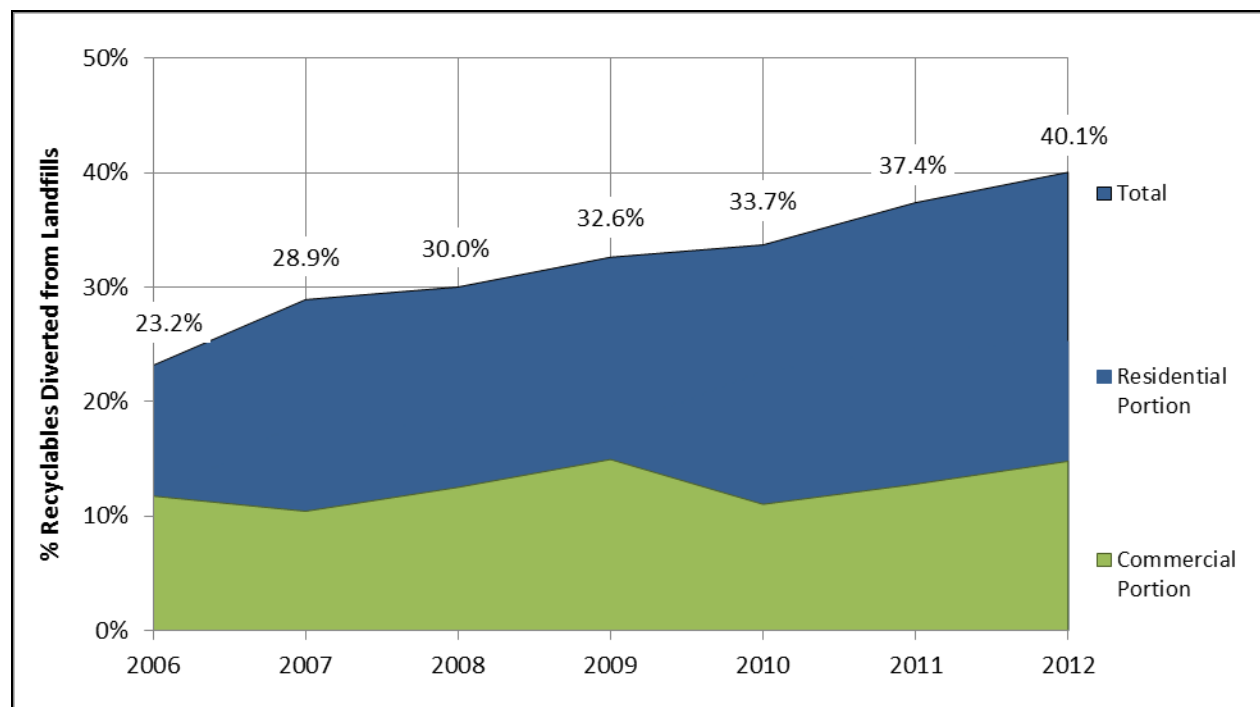
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Executive Summary

We have created an environment in Delaware that is increasingly supportive of recycling activities. In 2013 as a direct result of the Universal Recycling Law two new Material Recovery Facilities (MRFs) began operations representing over \$16 million in new investment and dozens of jobs. Now, for the first time ever we are processing our own source separated recyclables in Delaware. Before that, the statewide ban on yard waste in landfills led to the openings of large scale composting operations representing several million dollars in new investment and creating more jobs. These are all major advances both driven by and reflected in our increasing diversion rates. The fact of the matter is that we are turning more of our waste into a resource and simultaneously driving valuable sustainable domestic industry as a result.



There are many benefits to recycling which are often touted and occasionally debated. However, there is one impact which most people support and that must be acknowledged here: through a difficult period of economic recession, our recycling policies in Delaware have created significant investments in new industry and new jobs. In the most recent study of Delaware's recycling, reuse, and remanufacturing industry, recycling activities were estimated to have a **\$346 million** direct positive impact on our State's annual economy in CY2009. There have not been any subsequent studies but the economic contribution of these activities has undoubtedly continued to grow.

The Recycling Public Advisory Council (RPAC) has 16 Members representing diverse interests and has met regularly since the last report in November 2012. In addition to supporting and reporting on recycling activities, the RPAC is diligently working with all stakeholders to help implement the requirements of the Universal Recycling Law in the timeframes required. A more detailed discussion of these efforts follows. This report covers recycling activities since November 2012 and recycling measurement for calendar year 2012.

Recycling Legislation

Since the signing of the Universal Recycling Law in June of 2010, the RPAC has focused upon the implementation of the many elements of this law. The first major milestone of this law was single-family residential recycling, which was fully implemented by September 15, 2011. The next milestone was multi-family residential recycling, which was implemented on January 1, 2013. The final component of this law is recycling in the commercial sector, which has an implementation deadline of January 1, 2014. A report describing the implementation plan for commercial recycling was issued by the RPAC in November 2012.

Recycling Grants and Loans Program

The RPAC has worked with the Department of Natural Resources and Environmental Control (DNREC) to develop grant and loan guidelines as required by the Universal Recycling Law. The first cycle of the Universal Recycling Grant and Low-Interest Loan Program (grant program) funded twenty-two entities with over \$4.8 million to primarily support residential single-stream recycling. The second cycle of the grant program funded eight entities with over \$325,000; prioritizing multi-family residential single-stream recycling projects. In June of 2013 the grant contracts awarded during the third cycle of grant funding were signed. This grant cycle focuses on commercial recycling and awarded nearly \$1.4 million to a mix of fifteen different municipalities, waste haulers, private businesses and not-for-profit entities. The fourth cycle of the grant program will support recycling efforts in the commercial sector, those areas that require the most help, and those areas where the greatest diversion impact would be realized.

Outreach and Education

The RPAC believes that efforts to increase the awareness and benefits of recycling are critical to improving how waste is managed in Delaware. Therefore, the RPAC has worked with the DNREC and the DSWA to develop and implement outreach efforts. This has included such items as radio ads encouraging recycling, public meetings, billboards, and a how-to guide to inform individuals on what and how to recycle.

Recycling Diversion

The RPAC has used the same methods to calculate recycling rates in Delaware since 2006. The methodology is objective, scientific, auditable, and consistent with the U.S. Environmental Protection Agency's (EPA) guidelines. A summary of the recycling rates produced using this methodology since 2006 is shown in Table 1 below:

Table 1. Recycling Rate Summary, CY 2006-2012.

	Calendar Year						
	2006	2007	2008	2009	2010	2011	2012
Diverted Recyclables	23.2%	28.9%	30.0%	32.6%	33.7%	37.4%	40.1%
Major Milestones¹	Executive Order re-establishes RPAC. Two separate reports recommend comprehensive recycling	Wilmington implements curbside recycling citywide	Cherry Island yard waste ban. DSWA offers Single Stream	Some private haulers begin offering curbside recycling	Universal Recycling signed into law	Central & Southern Yard Waste bans take effect.	First full year of single-family, single-stream

¹For a detailed explanations of Delaware's major recycling milestones see "Appendix E. Background of Recycling Efforts in Delaware"

It is important to note that the commercial component of Universal Recycling, which is not required to be implemented until January 1, 2014, will not be reported until late 2015. With a statewide recycling rate of over 40% for Calendar Year 2012 and the full impact of the Universal Recycling Law still to come; it may be possible that Delaware is on track to meet the goal of 50% diversion of MSW by 2015.

Recommendations

The RPAC's recommendations to Governor Markell and the General Assembly include steps they can take to increase the recyclables diversion rate:

- 1. Provide RPAC the discretion to fund those purposes specifically identified in the original Universal Recycling Legislation** (7 Del. C. Chapter 60, Subchapter III, Solid Waste Recycling). In order to meet the diversion goals established under the Universal Recycling Law, the RPAC estimates all of the funds from bottle fees will be required.
- 2. Lead by example - require recycling in all state government facilities, including public schools, the courts system, and the legislature.** Many schools, legislative branch offices, and judicial branch offices are believed to lack effective recycling programs. The status of recycling in executive branch offices under Executive Order 18 should be measured.

1.0 Purpose

This is the Annual Report of the Recycling Public Advisory Council (RPAC). The purpose of the report is to fulfill requirements of 7 Del. C., §6058, which directs the RPAC to prepare an annual report addressing the following:

1. The status of attainment of the recycling goals specified in 7 Del. C., §6056;
2. An accounting of the recycling grants and loans programs and recommendations for future funding of the programs;
3. An assessment of the activities of both the DNREC and the Delaware Solid Waste Authority (DSWA) in achieving the goals specified in 7 Del. C., §6056;
4. An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste; and
5. Such other recommendations as the RPAC shall deem appropriate.

The Solid Waste Recycling Law (the Universal Recycling Law) is attached to this report as Appendix A. A list of the current RPAC members can be found in Appendix B.

2.0 Background

2.1 Benefits of Recycling

There is more to recycling than feeling good about the environment. It also has tremendous economic value. Recycling:

- **Provides over 10 times more jobs than landfilling**
- **Creates local industry**
- **Extends the useful life of municipal landfills**
- **Reduces emissions of greenhouse gases**
- **Saves energy**
- **Conserves natural resources**
- **Reduces environmental damage from industrial, residential, and commercial waste**
- **Teaches environmental stewardship to individuals, business and government**

For further detail and supporting documentation please reference *The Sixth Annual Report of the Recycling Public Advisory Council*, visit the RPAC website, or contact the Division of Waste and Hazardous Substances, Solid & Hazardous Waste Management Section (see cover sheet).

The Northeast Recycling Council, Inc. (NERC) produced the *Recycling Economic Information Study Update: Delaware, Maine, Massachusetts, New York, and Pennsylvania* in February 2009. This report and its last two iterations are available on NERC's website, www.nerc.org. An important note is that the Delaware recycling, reuse, and remanufacturing industry has a \$346 million direct positive impact on our State's annual economy - and this number is growing.

2.2 Recent Recycling Efforts in Delaware

The State of Delaware has been promoting recycling since 1975, and a more extensive history of those efforts can be found in Appendix E. The following is a summary of recent recycling efforts.

Between May 1, 2012 and April 1, 2013 the multi-family grants were completed. The grants funds awarded were for the capital costs of providing multi-family collection equipment and outreach and education materials. While not all grants in this cycle were geared toward multi-family recycling, most were consistent with the funding priority in this grant cycle.

In June of 2013 the grant contracts awarded during the third cycle of grant funding were signed. This grant cycle focuses on commercial recycling and awarded nearly \$1.4 million to a mix of fifteen different municipalities, waste haulers, private businesses and not-for-profit entities.

On May 3, 2013 Carpet Recycling Strategy Committee issued its report called for under Senate Joint Resolution No. 8. In summary, the Committee was unable to reach consensus on recommendations on how to increase carpet recycling in Delaware with a goal of having 100% of all carpet removed in Delaware be diverted to a carpet recycling. When the full Recycling Public Advisory Council (RPAC) reviewed this report, it suggested that Delaware revisit the status of carpet recycling in another two years. At that time, Delaware will have better data on carpet diversion and recycling due to the reporting requirements in the Universal Recycling Law and the RPAC will be moving its efforts from residential solid waste to construction and demolition waste.

Between July 2012 and January 2013 the Zero Waste Working Group, which included members that represented industry, retailers, DSWA, DNREC, recyclers, and several environmental groups, met monthly to discuss and to present draft legislation that would lead to more effective plastic bag management in Delaware. The group did achieve consensus on a number of points including: fugitive plastic bags are a problem for infrastructure and wildlife in Delaware and education will be a part of any plan to reduce plastic bag waste. However, the group had divergent views and did not agree on any legislative recommendations. Some members independently lobbied to introduce a bill to continue the At-Store recycling program. This bill passed the House last legislative session and is expected to be introduced to the Senate this coming session.

Between November 1, 2012 and October 31, 2013 nineteen outreach and education training events were held throughout the state in reference to grant opportunities, the implementation of commercial recycling, and general recycling outreach and education. For a detailed list of these events see Table 7 in section 6 of this report.

On August 29, 2013 ReCommunity held its grand opening ceremony. The opening of a state-of-the-art Materials Recovery Facility marks a recycling milestone for the State of Delaware. With the opening of this facility Delaware now possesses the capability to separate and market its own recyclables. As a result, not only are the profitability of these valuable resources maximized, dozens of valuable local jobs are also created in the process, and \$15 million in construction costs were added to the local economy. This chapter in Delaware's recycling history is possible as a result of the high diversion of recyclables afforded by the state's Universal Recycling law. ReCommunity and DSWA should be commended for their partnering efforts.

3.0 RPAC Activities

Over the past year, the RPAC has continued to primarily focus its efforts on implementation of the Universal Recycling Law. This includes providing recycling grant and loan guidance, establishing recycling guidance and toolkits for residents and businesses, and measurement and reporting of the amount and percent diversion of recyclables from Delaware landfills.

3.1 Measurement and Reporting

Prior to the reinstitution of the current RPAC, a Measurement and Methodology Subcommittee developed a methodology for measuring recycling diversion rates based upon EPA guidelines. This methodology provides an objective and auditable approach to recycling measurement which was relevant and repeatable. The Subcommittee's name was subsequently changed to "Measurement and Reporting" but their work continues in the current RPAC and has resulted in the seventh Recycling Measurement Report (included as section 4.0 of this report). Most importantly, these Recycling Measurement Reports establish a uniformly accepted approach that will make past, present, and future recycling measurements consistent and comparable.

The RPAC and DNREC have developed guidelines for the recycling industry to report information as directed by the Universal Recycling Law (7 Del. C., §6056). To help protect proprietary business information, the RPAC has been using a consultant to collect recycling data. Because reporting on commercial recycling activities was not previously obligatory, the Recycling Measurement Report was limited to voluntary surveys. The new, legally required reporting system will generate a fuller and more accurate spectrum of data, and will result in a better overall measurement of recycling in Delaware. The first reporting year with the new data collection was 2011, which means this is the first report with the required industry reporting. This report includes the first full year of single-stream, single-family curbside data resulting from the first component of universal recycling implementation.

3.2 Recycling Markets

Paul Bickhart (RPAC Member representing the recycling industry) and Michael Parkowski (RPAC Member representing DSWA) have key industry contacts providing information on the sale of collected recyclables. They have educated the RPAC on the status of recycling markets to better understand current industry circumstances. In late 2008, the markets for recycled commodities declined sharply in response to the national and global economies. Later in 2009 prices very slowly started to improve. The outlook continued to be positive into 2010, and was relatively strong and stable in 2011. Prices generally declined for some commodities and remained flat for others in 2012. In 2013 the overall recycling markets have been relatively flat with little price movement up or down and on the low side of historical trends due to the weak global economy. Recent market trends have placed strong emphasis on material cleanliness with less tolerance for contamination. Delaware is well suited to meet these demands with the modern separation infrastructure that has recently been constructed. Furthermore, transporting

materials adds approximately \$12 per ton for every 100 miles of transit so processing materials locally improves the economics for recyclables.

3.3 Outreach

The RPAC, DNREC, and the DSWA have coordinated education of the public on the transition into universal curbside recycling, better yard waste diversion, DSWA's departure from curbside recycling, the transition out of beverage container deposits, recycling industry reporting requirements, and the availability of a new recycling grant and loan program. Outreach efforts will continue. Educating the public is of very high importance to the RPAC and a necessary part of any successful program. Citizens might not know why they should recycle or how to participate. The RPAC has developed a Subcommittee to help guide outreach efforts, including general steps forward for DNREC and the DSWA. While the RPAC does not provide recycling services, they want to facilitate and encourage recycling among citizens. DNREC and DSWA outreach efforts are described in Section 6, Section 7, and Appendix D.

3.4 Other Activities

The RPAC is committed to helping Delaware find better waste management practices. Regular meetings provide insight into a variety of topics. Most discussions and presentations over the past year have focused on the implementation of the Universal Recycling Law. As required in the Universal Recycling Law, RPAC submitted a report entitled "Recommendations for Implementing Universal Recycling in Delaware's Commercial Sector" to the Governor and the General Assembly, concurrent with the 11th edition of this report, in November 2012. That report includes a Frequently Asked Questions (FAQ) section, as well as a series of commercial recycling 'toolkits' to help various types of commercial entities (such as office buildings, restaurants, hotels, and supermarkets) comply with the Universal Recycling Law.

RPAC continues to significantly contribute to the Universal Recycling Grant and Low-Interest Loan Program by reviewing and scoring grant applications. In addition to the recycling grant program, in the past year the RPAC prepared a report on carpet recycling, and participated in meetings addressing single-use plastic bags. With DNREC's assistance the RPAC also continues to track recycling fee revenue. The revenues raised by the recycling fee have been consistently lower than initial projections. At current rates, the total amount collected by the end of 2014 will be about \$14 million, or 64% of the original \$22 million projected. The revenues raised in 2013 are comparable with 2012, but are still well below projections.

4.0 Recycling Measurement Report

Originally under Executive Order 90, the RPAC had been directed to use the U.S. EPA's definitions of "recycling" and "municipal solid waste" and also to develop an "objective and auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste." In response to this directive, the RPAC created the Measurement and Reporting Subcommittee (M&R Subcommittee) comprising members of the RPAC, DSWA, DNREC, and the community. Pursuant to this directive, the M&R Subcommittee produced a methodology which was developed via an open and transparent process, recorded in such a way that it could be easily understood by members of the general public, and which was fully endorsed by each organization represented on the Council. This methodology has been consistently employed by the RPAC to analyze recycling data since CY2006 so that meaningful trends and comparisons could be established. The M&R Subcommittee has continued to employ this methodology under the new Universal Recycling Law.

4.1 Data Collection

The M&R Subcommittee obtained data from DSM Environmental Services, Inc. (DSM) for CY2012. Their report, *The State of Delaware Assessment of Municipal Solid Waste Recycling for Calendar Year 2012*, is excerpted in Appendix C. In previous reports, DSM had collected data on recyclable materials collected by private industry in Delaware, while DSWA collected its own data and reported numbers directly to the RPAC. The RPAC then calculated commercial and residential waste disposal and recycling estimates using both data sets. Starting with calendar year 2011 data and again this year with the calendar year 2012 data, DSM collected data from both the DSWA and from private industry, and calculated recycling rates using methodology consistent with the M&R Subcommittee's previous efforts.

Calendar year 2012 represents the second year that private industry was required to report on recycling activity, per the Universal Recycling Law. While reporting has notably improved as a result of this requirement, DNREC and DSM continue to work with and pursue non-reporters who are believed to have valuable recyclables generation data which is critical to calculating the most accurate diversion rate possible.

The RPAC and DSM have worked to ensure that the methodology for data gathering is consistent with EPA guidelines and that there is no double counting of recycling activities. The survey work by DSM was funded by the DSWA for CY 2012, but program management has been the responsibility of the RPAC.

4.2 Diversion Rate Calculation

The waste stream can be broken down into two primary categories: Municipal Solid Waste (MSW) and non-MSW. Put simply, MSW is what most of us think of when we think of "trash" - even though it contains a high percentage of valuable resources. The EPA's guidance for calculating recycling rates limits "recycling" to the category of MSW. Additional detail

regarding definitions of recycling can be found in RPAC's 2006 Annual Report and in "Measuring Recycling: A Guide for State and Local Governments" (EPA-530-R-97-011).

Determining the percent diversion of recyclables from Delaware's solid waste stream involves the following calculation:

$$\text{Diversion rate of recyclables (\%)} = 100 \times \frac{\text{MSW recyclables, tons diverted}}{\text{MSW recyclables, tons diverted} + \text{MSW, tons disposed}}$$

The methodology developed by the RPAC calculates the percent of recyclables diverted from the MSW stream, as well as the total tonnage of MSW being landfilled. It also subdivides results into the residential and commercial sectors. These residential and commercial allocations were developed based upon comprehensive waste composition studies conducted in 2006 and 2007, the best judgment of DSM, and the best judgment of the members of the M&R Subcommittee.

Determining whether a material was generated by the commercial or residential sector can sometimes be difficult to resolve and is not always intuitive. Generally the EPA and the M&R Subcommittee allocate materials to the original 'generator' even though they may not be the one who actually performs the recycling. For example, lead acid battery recycling performed by a commercial battery retailer would be attributed 80% to the residential sector because approximately 80% of the batteries are generated from non-commercial vehicles. While this 'generator rule' can be debated, it is consistent with general EPA guidelines and has been applied consistently since 2006.

4.3 Recycling Rates

Since CY2006, the RPAC has employed an objective, scientific, and auditable methodology for calculating recycling rates in Delaware that is consistent with the U.S. EPA's guidelines. A summary of the recycling rates produced using the aforementioned methodology is shown in Table 2 below:

Table 2. Recycling Rates Summary, CY2006-2011.

	2006	2007	2008	2009	2010	2011	2012
Diverted Recyclables (tons)	248,410	323,396	318,002	323,637	359,147	401,883	405,953
MSW Disposed	823,479	794,984	741,143	668,353	706,368	672,761	574,206
Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed	1,071,889	1,118,380	1,059,145	991,990	1,065,515	1,074,644	1,013,492
Percent Diverted Recyclables	23.2%	28.9%	30.0%	32.6%	33.7%	37.4%	40.1%

Results comparing the prior two year's residential to commercial sector results for CY2011 & CY2012 are shown in Table 3 below. The residential recycling rate continues to be significantly higher than the commercial recycling rate in both years. It is important to understand that waste and recycling tonnages fluctuate on an annual basis for many reasons and

due to a variety of influences such as the economy, recyclables markets and minor errors and omissions that may be discovered in subsequent reporting years. Even though the overall tonnage of residential recyclables is lower in CY2012 than in CY2011, so is the tonnage of waste disposed. In summary, while there may be slightly less residential recyclables tonnage it is a function of the fact that the overall waste tonnage is also slightly down. What is important to note is that as a result of the implementation of Universal Recycling the overall recycling rate continues to rise substantially. Also, due to the hauling community efforts in also offering recycling services to the commercial sector, commercial recycling is increasing prior to its required implementation.

Table 3. Recycling Rates for Residential and Commercial Sectors, CY2011-2012.

	2011		2012	
	Residential	Commercial	Residential	Commercial
Diverted Recyclables (tons)	264,381	137,502	256,028	149,925
MSW Disposed	329,062	343,699	296,719	277,487
Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed	593,443	481,201	569,414	444,079
Percent Diverted Recyclables	44.6%	28.6%	45.0%	33.8%

4.4 Behind the Data – CY2012

Despite a questionable economy, CY2012 saw a continued increase in diverted recyclables versus previous years and a decrease in landfilled MSW versus CY2011. The CY2012 statewide average diversion rate was 40.1%: a net increase of 2.7% since CY2011 (Figure 1). This trend is expected to continue through CY2013, which will be the first full year under the Universal Recycling Law mandate requiring multi-family households to also be provided with single-stream recycling collection services. From 2010 (the year prior to the enactment of Universal Recycling) to 2012 the tonnage of diverted recyclables has increased by over 13%. This increase was largely due to increased yard waste and single-stream recycling.

Figure 1. Percentage of recyclables diverted from landfills in Delaware, CY2006-2012.

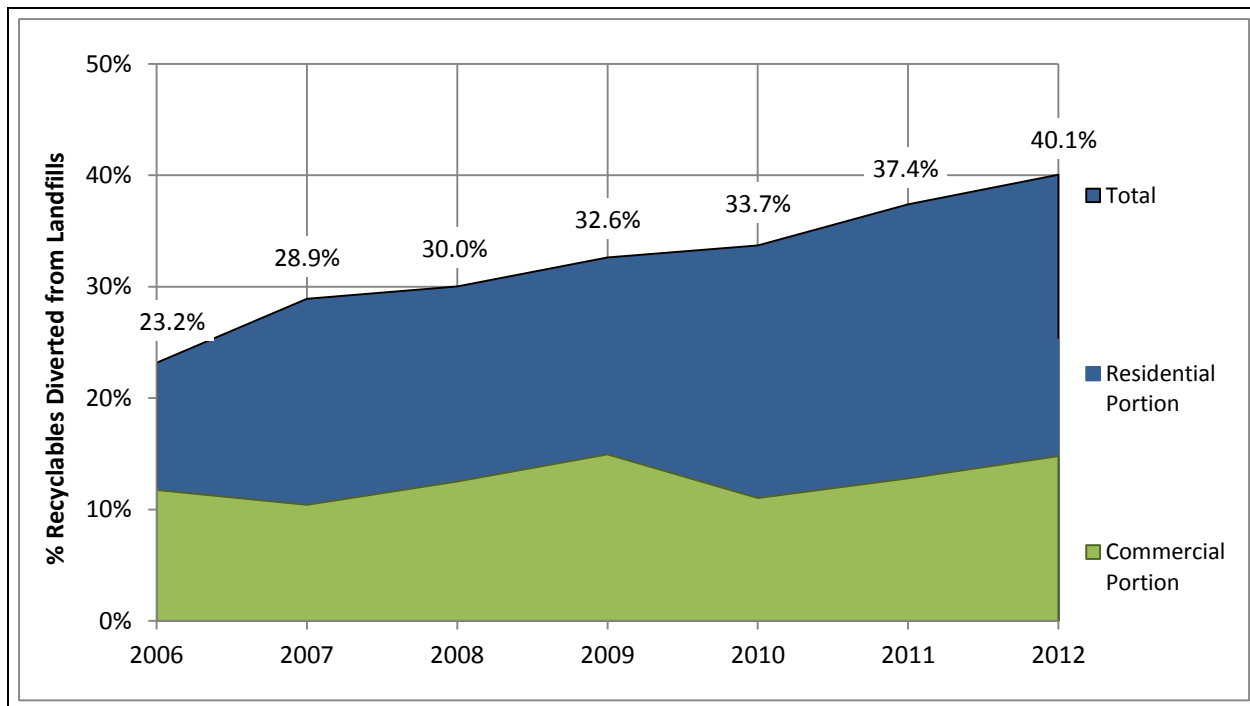


Figure 2. Total tons of MSW recycled or landfilled in Delaware, CY2006-2012.

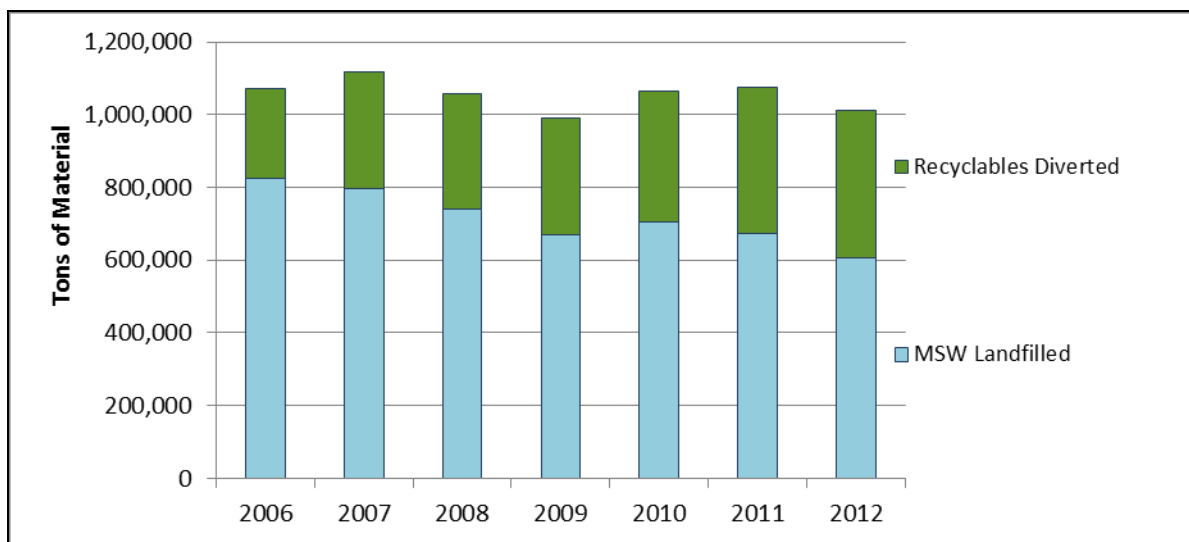
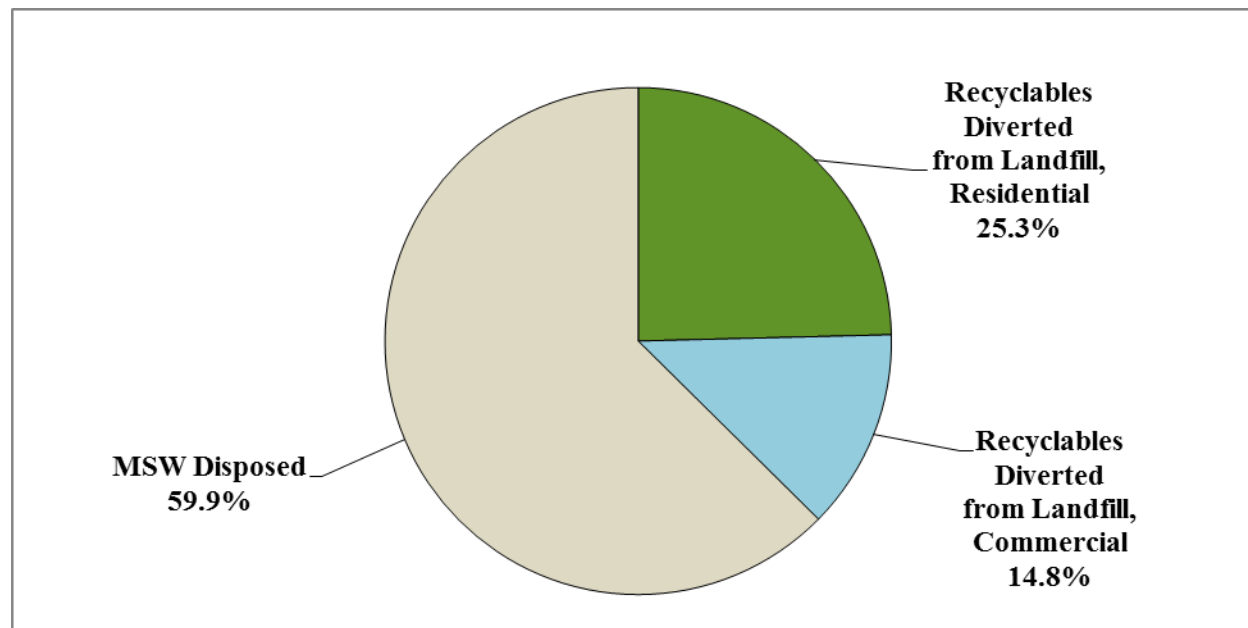


Figure 3 shows the percentage of residential and commercial recyclables diverted from landfilling in CY2012. The combined percentages of residential and commercial recyclables diverted equal the combined recycling rate of 40.1% for CY2012.

Figure 3. MSW Disposed and % Residential and Commercial recyclables in CY2012.



Results from CY2012 showed a marked increase in diverted residential recyclables, due to the full year of single-family of residential recycling. It's worth noting that since the implementation of Universal Recycling the single-stream diversion tonnage has nearly doubled from the 2010 rate.

4.5 Status of the Recycling Goals

The passage of the Universal Recycling Law established diversion goals of 50% for MSW and 72% for all solid waste by 2015. The diversion rate of recyclables for CY2012 was 40.1% for the total MSW stream. To reach the goal of 50% by 2015 will require an average annual increase in recycling diversion rate of nearly 5%. With the continued yard waste bans on our landfills, universal recycling now implemented for all single-family residences in Delaware, multi-family residence recycling beginning in 2013, and commercial recycling beginning in 2014, it may be possible that this goal will be reached. However, additional measures may be required, including those described in Section 8. *Recommendations*.

By maintaining a consistent methodology for 7 years, the RPAC has been able to develop a reasonably accurate and meaningful trend line analysis for recycling progress in Delaware. Continuing with this consistent methodology will enable the accurate tracking of progress toward the state's goals and help to inform future policy decisions.

The RPAC has not yet established a methodology for collecting and analyzing data for the total waste stream. This is a very significant undertaking and the RPAC plans on approaching it with the same degree of thoughtfulness, thoroughness, and transparency employed for the development of the MSW methodology. A second statewide comprehensive waste characterization study is planned for CY2015. This study will allow us to further refine our measurements and methodology for MSW, but it will be requisite in order to develop the methodology and calculate the state's diversion of all solid wastes.

5.0 Recycling Grants and Loans Program

The Universal Recycling Law establishes the Recycling Grants and Low Interest Loan Program (7 Del. C., §6054 and 7 Del. C., §6055). This program is designed to help implement:

- (1) Recyclables collection programs (especially residential programs); and
- (2) Other recycling initiatives (especially the recycling of commercial waste).

DNREC began the Recycling Grants and Low Interest Loan Program (the Program) in calendar year 2011 and will offer it at least annually until 2014. The RPAC has assisted DNREC in developing the Guidelines for each of the four cycles of the Program.

The application deadline for the first cycle of the Program was January 24, 2011. Funding criteria for this round prioritized startup costs for single-stream, curbside recycling programs. The first cycle primarily funded the purchase of recycling carts, collection trucks and related equipment, and outreach expenses. Most of the awardees were municipalities and waste haulers. Entities that applied, were awarded, and accepted funding during the first cycle are included in Table 4.

Table 4. Entities Funded During the First Grant Cycle.

Applicant	Funding
Bethany Beach	\$ 250,377.00
City of Dover	\$ 101,151.00
City of Lewes	\$ 118,830.00
City of New Castle	\$ 24,220.00
City of Newark	\$ 212,063.00
City of Rehoboth	\$ 40,187.00
City of Wilmington	\$ 657,320.00
Delaware City	\$ 29,130.00
DE Restaurant Association	\$ 12,470.00
Delaware Sanitation	\$ 301,662.00
Econo-Haul	\$ 983,075.00
Fenwick Island	\$ 10,920.00
First State Disposal	\$ 201,053.00
Hockessin Sanitation	\$ 101,831.00
Jay D C Enterprises	\$ 149,760.00
KRC Waste Management, Inc.	\$ 104,160.00
Moor Disposal Services	\$ 778,939.00
O'Fig Sanitation	\$ 66,375.00
Palmatary's Sanitation	\$ 114,447.00
Town of Elsmere	\$ 94,622.00
Town of Middletown	\$ 306,000.00
Town of Smyrna	\$ 170,295.00
Total	\$ 4,828,887.00

The application deadline for the second cycle of the Program was March 14, 2012. Funding criteria for this round prioritized compliance assistance with the multi-family residential component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses. Entities that applied, were awarded, and accepted funding for the second cycle are listed in Table 5. Most of the awardees were municipalities and waste haulers.

Table 5. Entities Funded During the Second Grant Cycle.

Applicant	Funding
Wilmington Housing Authority	\$ 18,059.80
HARJOCO	\$ 54,941.84
DE Restaurant Association	\$ 3,000.00
Econo-Haul	\$ 138,965.00
City of Rehoboth Beach	\$ 18,300.00
City of Newark	\$ 6,604.00
Lutheran Senior Services	\$ 2655.48
Burns and McBride	\$ 83,521.66
Total	\$ 326,047.78

The application deadline for the third cycle of the Program was March 28, 2013. Funding criteria for this round prioritized compliance assistance with the commercial recycling component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses. Entities that applied, were awarded, and accepted funding for the third cycle are listed in Table 6. Grant contracts for these awardees were signed in June of 2013. The awardees were a mix of municipalities, waste haulers, private businesses and not-for-profit entities.

Table 6. Entities Funded During the Third Grant Cycle.

Applicant	Funding
Waste Management Inc.	\$91,933.33
Bethany Beach	\$17,325.00
Del. Nature Society	\$3,425.00
RevolutionRecovery	\$357,949.00
RPJ Waste	\$280,152.82
Recycling Express	\$58,291.63
Lewes	\$34,800.00
Delaware State Fair	\$22,480.00
Dover Downs	\$28,532.50
REPLENISH - North	\$76,608.00
Del-Mar-Va Council	\$35,212.43
K.S.I.	\$20,225.25
EDEN Delmarva-TLG	\$58,400.00
First State Disposal	\$172,227.00
Peninsula Disposal	\$133,357.33
Total	\$1,390,919.29

The 146th General Assembly used Bond Bill (House Bill 410) language to direct DNREC to issue a recycling grant to fund the DNREC run yard waste sites. Holland Mulch was awarded a grant to establish a new yard waste drop-off site the details of which are discussed in greater detail in section 6.2 of this report.

The Recycling Grants and Low Interest Loan Program is funded by the recycling fees established in the Universal Recycling Law. The fees will automatically sunset in 2014. As of July 2013, the total revenue generated was \$9.0 million. A total of \$7,027,854.07 has already been allocated on the above mentioned grants. About \$5 million is expected to be available for future grant cycles. DNREC and RPAC are certain that funding will be critical in order to reach the legislated diversion goals established for the 2015 and 2020. As such the remaining funding will fund grant opportunities beyond 2014 when collection of the bottle fee ends.

6.0 DNREC Activities

DNREC's activities conducted in support of waste minimization and attaining the waste diversion goals included providing support to the RPAC, encouraging the recycling of yard waste, implementing universal recycling legislation, and conducting outreach and education.

6.1 Supporting the RPAC

In fulfillment of its responsibilities under the Universal Recycling Law, and previously under Executive Order No. 90, DNREC continues to work diligently to provide support to the RPAC. The tasks that DNREC carried out in this area included, but were not limited to:

- Arranging all RPAC meetings;
- Preparing and distributing agendas and minutes for all RPAC meetings;
- Publicizing the RPAC meetings, reports, and efforts;
- Coordinating the Universal Recycling Grant and Low-Interest Loans Program;
- Participating in Subcommittees: Measurement and Reporting (M & R) Subcommittee (responsible for establishing and enforcing recycling reporting requirements and an agreeable recycling measurement methodology for Delaware); Outreach Subcommittee; Commercial Industry Recycling Subcommittee; and Carpet Recycling Subcommittee (mandated by SJR 8 in April 2012);
- Drafting pertinent products or documents for RPAC meetings and Subcommittees; and
- Preparing the RPAC's Annual Report (including printing and distribution).

6.2 Supporting the Diversion of Yard Waste

The bulk of DNREC's yard waste diversion efforts have been the operation and maintenance of two temporary community yard waste demonstration sites in New Castle County. The sites were created for residents to bring yard waste from their own property for free. The materials collected at these sites are periodically ground into mulch, which is removed by a contractor.

The 146th General Assembly used Bond Bill (House Bill 410) language to direct DNREC to issue a recycling grant to fund the DNREC run yard waste sites. Following DNREC's 2012 request for support, the RPAC recommended that DNREC use recycling grant money to issue either: a) A one-time grant for establishment of a private yard waste site that will serve as an alternative to both the DART and Polly Drummond Hill Road sites in between the two existing sites, OR b) A one-time grant for the establishment of a private alternative to the DART site and a one-time grant for the operation of the Polly Drummond Hill Road site or it's alternative. The intent was solely to transition state-operated yard waste drop-off sites into the private sector. The selected grantee, Holland Mulch, will use the grant funds to establish a new yard waste drop-off site in between the two sites. There was a long delay in Holland Mulch getting the necessary approvals from New Castle County and the Department of Transportation to open this new site which will accept yard waste from Delaware residents at no cost for at least five years. However, Holland Mulch did establish a small temporary site drop off location near the proposed

site to accommodate the public in the interim. This new site is now expected to open in December 2013. The DNREC DART yard waste site closed in December 2012 and the Polly Drummond site remains open for the time being.

The enforcement of the Cherry Island Landfill yard waste ban has been in place for about five years. Yard waste bans were incorporated in permits for DSWA's Central and Southern landfills effective January 1, 2011. Individuals and businesses have adjusted well. It is estimated that as much as 126,463 tons of yard waste were diverted from Delaware's landfills in 2012. Banning yard waste has effectively diverted a useful material from entering the landfill while fostering local jobs and businesses.

DNREC also continues to work with the University of Delaware Cooperative Extension, the Delaware Center for Horticulture, and a large variety of community groups to educate residents on composting and other alternatives. DNREC readily presents yard waste management information and options to community and interest groups, maintains a yard waste management website (www.dnrec.delaware.gov/yardwaste), and produces a guide to backyard composting.

6.3 Implementing Recycling Legislation

Since the passage of the Universal Recycling Law, DNREC continues educational efforts while implementing the tasks required by the law. DNREC has met with waste haulers, municipalities, and the DSWA to coordinate the transition into universal recycling. DNREC has also been in many discussions with retailers, distributors, manufacturers, consumers, and the Division of Revenue to facilitate the bottle recycling fee collections, and has diligently worked to establish the Universal Recycling Grant and Low-Interest Loan Program. The third cycle of the grant program, which emphasized the commercial component of Universal Recycling, oversaw nearly \$1.4 million in funding to 15 municipalities, waste haulers, private businesses and not-for-profit entities. Recycling measurement guidance has been developed by DNREC in conjunction with the RPAC. Significant outreach and education, discussed in detail in the next section, has been conducted and will continue to be a focal point for DNREC, DSWA and RPAC. Much work remains, but DNREC certainly has invested significant staff time and resources to support and carry out the Universal Recycling Law.

6.4 Public Education and Outreach

With the implementation of universal recycling, DNREC worked with RPAC and the DSWA on ways to reach practically every Delawarean. DNREC accomplished the following media efforts in 2013 (see Appendix D for examples):

- Maintained & upgraded 'Delaware Recycles' website www.recycling.delaware.gov
- Maintained 'Delaware Recycles' Facebook page www.facebook.com/delawarerecycles
- Produced ongoing radio ads from Spring 2012- Spring 2013
- Produced a 30-second TV commercial that aired on WMDT stations in the Winter (2012-2013)
- Updated the digital version of the 'How To Recycle' Guide (March 2013)

DNREC continues to improve and augment the recycling information resources available on its website and in its handouts. All of RPAC's Annual Reports, recent meeting minutes and agendas, studies,

information on universal recycling, and information on recycling and composting are available on the DNREC recycling website at: (www.awm.delaware.gov/Recycling/Pages/Recycling.aspx) and the DNREC-maintained RPAC website (www.awm.delaware.gov/Info/Pages/RPAC.aspx). These websites include the commercial recycling FAQs, the commercial recycling toolkits, and the commercial recycling Governor's report. DNREC also has developed and updated websites dedicated to yard waste (www.dnrec.delaware.gov/yardwaste) and the Universal Recycling Law (www.recycling.delaware.gov).

DNREC conducted or participated in many activities to increase public awareness of recycling opportunities and benefits. DNREC held several recycling workshops in 2013 to provide information and assistance to the commercial sector. The topics covered in the workshops included: legislative requirements; universal recycling grants; commercial recycling toolkits; waste characterizations for small businesses; growing recycling opportunities in Delaware; and local recycling success stories. DNREC distributed outreach materials and information at public events such as the Horseshoe Crab & Shorebird Festival, Delaware State Fair, Coast Day, and various farmers markets. Presentations were also provided to schools and community groups upon request. Outreach activities focused on the opportunities and benefits of recycling and waste reduction. As a result of these activities, tens of thousands of Delaware residents were educated on a variety of recycling issues. Table 7 lists public outreach events and meetings attended by DNREC.

Table 7. Recent DNREC Public Outreach Events and Meetings.

Date	Meeting/Event (Location)	Time	Hosted By
February 13, 2013	Commercial Recycling/Grant Workshop (Middletown)	3:30-5:30pm	DNREC
February 18, 2013	Commercial Recycling/Grant Workshop (Dover)	3:00-4:30pm	DNREC
February 19, 2013	Commercial Recycling/Grant Workshop (Wilmington)	3:30-5:30pm	DNREC
February 21, 2013	Commercial Recycling /Grant Workshop (Georgetown)	3:30-5:30pm	DNREC
February 25, 2013	Commercial Recycling / Grant Workshop (Lewes)	3:30-5:30pm	DNREC
February 26, 2013	Commercial Recycling / Grant Workshop (Newark)	3:30– 5:30pm	DNREC
February 28, 2013	Commercial Recycling / Grant Workshop (Seaford)	3:30– 5:30pm	DNREC
April 3, 2013	Recycling Presentation	5:30 – 7pm	Sussex County Assoc. of Towns
April 19, 2013	Super Science Day (Dover)	12:30-2:30pm	East Dover Elementary
April 22, 2013	Earth Day Event (Wilmington)	11-2pm	Partnership for the DE Estuary
April 22, 2013	DNREC Earth Day Event (Dover)	11am-1pm	DNREC
April 23, 2013	Siemens Earth Day Event (Newark)	10-2	Siemens Healthcare Diagnostics
April 26, 2013	Community Day (Milton)	10-4	Eagle's Nest Christian Academy
May 25, 2013	Horseshoe Crab & Shorebird Festival (Milton)	10- 4	Prime Hook Refuge / Town of Milton
June 11, 2013	Rehoboth Beach Farmers Market (Rehoboth)	11:30-5pm	Rehoboth Beach Farmers Market
June 27, 2013	Millville Farmers Market (Millville)	9-2:30pm	Town of Millville
July 18-27, 2013	Delaware State Fair (Harrington)	10-8pm (daily)	Delaware State Fair
October 5, 2013	Rider Pride Day (Camden)	9-2pm	Caesar Rodney School District
October 6, 2013	Coast Day (Lewes)	11-5pm	UD – Lewes Campus

7.0 DSWA Activities

7.1 RECYCLE DELAWARE

Drop Off Center Program

The DSWA continues to operate over 115 recycling drop off centers conveniently located throughout Delaware. The drop off center program continues to be one of the most successful and cost-effective voluntary drop-off programs in the nation. Delaware residents can drop off single stream recycling as well as used motor oil, oil filters, household batteries, corrugated cardboard and textiles. In FY12, 13,596 tons of recyclables were received at the drop off centers.

Electronic Goods Recycling Program

In FY12, 1,945 tons of electronic goods were recycled through DSWA's electronic goods collection program. There are currently 12 electronic good drop-off locations throughout Delaware. DSWA provides free collection of electronic goods to government agencies and schools each month.

Household Hazardous Waste (HHW) Program

In FY12, DSWA held fifteen (15) HHW events throughout the state. Approximately 4,000 vehicles dropped off household hazardous waste. The total amount of HHW collected at all events totaled 228,984 pounds. In addition to the fifteen events held throughout the state, DSWA holds weekly collection events at the DSWA Cheswold Collection Station and at the Delaware Recycling Center in New Castle. These weekly events collected an additional 76,568 pounds of material, making a grand total of 305,552 pounds collected for FY12.

Oil Filter and Waste Oil Recycling Programs

In FY12, DSWA collected 36 tons of oil filters and 680 tons of used motor oil from over 40 DSWA drop off centers located throughout Delaware.

7.2 Universal Recycling Activities

The Governor's Universal Recycling Bill was signed into law June 8, 2010. DSWA believes the Universal Recycling Law will significantly increase the amount of recycling participation in Delaware. In FY12 DSWA received 63,284 tons of single stream recyclables from trash haulers who collected it from residents living in single family and multi-family dwellings. The significant increase in single stream recycling that occurred because of the Universal Recycling Law has made it possible for the construction of a brand new, state of the art, Material Recovery Facility (MRF) which is located at the Delaware Recycling Center in New Castle. This new facility was built by Re-Community Recycling, a nationwide recycling company. The new MRF will be able to process single stream recycling at the rate of 35 tons per hour and has enough

capacity to handle all of the single stream material for the State of Delaware for the next 20 years.

7.3 Public Education and Outreach

DSWA strongly believes in educating Delaware residents to increase awareness and to establish an interest in protecting the environment. DSWA educates residents about their programs through school and community presentations, attending special events, and developing educational books and program brochures. In 2012, DSWA attended over 150 school and community presentations reaching over 19,500 residents. DSWA distributed educational materials covering multiple topics for children of all ages with emphasis on recycling and composting.

In 2012, DSWA placed an important emphasis on its public outreach effort by attending over 28 different events throughout the state, which reached over 300,000 Delaware residents. DSWA attended events such as the Delaware State Fair in Harrington, University of Delaware's Coast Day in Lewes, as well as hosting the Annual DSWA Earth Day Event in Felton. DSWA attends events like these to promote environmental awareness throughout the state as well as educate the public on programs and facilities that DSWA provides for residents.

DSWA has recently constructed a new Environmental Education Building, located at the Delaware Recycling Center. The new building will serve as a destination for school field trips, so children can learn about recycling and environmental protection.

DSWA encourages citizens of Delaware to contact them if they are in need of environmental information concerning any DSWA program or facility. DSWA provides a Citizens' Response Line, (800-404-7080) which answers approximately 100 calls a day from residents. In addition, DSWA's website (www.dswa.com) provides even more information for Delaware residents. These resources provide valuable information and keep the personal touch that has helped to establish DSWA as a leader in the environmental community.

8.0 Recommendations

The RPAC's recommendations to Governor Markell and the General Assembly include steps they can take to increase the recyclables diversion rate:

1. **Provide RPAC the discretion to fund those purposes specifically identified in the original Universal Recycling Legislation** (7 Del. C. Chapter 60, Subchapter III, Solid Waste Recycling). In order to meet the diversion goals established under the Universal Recycling Law, the RPAC estimates all of the funds from bottle fees will be required.
2. **Lead by example - require recycling in all state government facilities, including public schools, the courts system, and the legislature.** Many schools, legislative branch offices, and judicial branch offices are believed to lack effective recycling programs. The status of recycling in executive branch offices under Executive Order 18 should be measured.

Appendix A. Universal Recycling Law

Delaware Code TITLE 7

Conservation

Natural Resources

CHAPTER 60. ENVIRONMENTAL CONTROL

Subchapter III. Solid Waste Recycling

§ 6051. Findings; intent.

In furtherance of the determination long established in § 6450 of this title that "the reduction of solid waste disposal and recovery of usable materials from solid waste are matters of extreme importance in minimizing the environmental impact of solid waste disposal through landfilling" and that it "is in the public interest to develop a comprehensive statewide system of recycling and resource recovery which maximizes the quantity of solid waste materials which can be recovered, reused or converted to beneficial use" the General Assembly hereby makes the following findings and declares the following intent with respect to the establishment of this subchapter. In order to establish a comprehensive statewide system of recycling, wherein recycling is maximized and the necessary economies of scale are realized, every residence and business must have access to recycling programs that are both convenient and cost effective. It is the intent of the General Assembly, in full recognition that the establishment of a comprehensive statewide recycling program has long been sought, that said program shall be accomplished by modification of the existing beverage container law and the establishment of universal recycling inclusive of the prescribed recycling programs, requirements and goals that follow. As such, liberal interpretation in favor of accomplishing the stated goals and objectives shall be exercised.

[77 Del. Laws, c. 275, § 1.](#);

§ 6052. Definitions.

Notwithstanding any definitions in Chapter 60 or 64 of this title to the contrary, the following words and phrases shall have the meaning ascribed to them in this subchapter unless the context clearly indicates otherwise.

(1) "Authority" means the Delaware Solid Waste Authority.

(2) "Beverage" means any mineral waters (but not including naturally sparkling mineral waters), soda waters or any other carbonated beverage not containing alcohol that is commonly known as a "soft drink" and any beer, ale or other malt beverage containing alcohol.

(3) "Beverage container" means any airtight non-aluminous container containing less than 2 quarts of a beverage under pressure of carbonation.

(4) "Dealer" means any person who engages in the sale of beverages in beverage containers to a consumer and shall include groups of retailers or retail chains.

(5) "Multi-family" means 3 or more attached structures, such as condominiums or apartments, generally intended for occupancy by individuals or families and where centralized community trash disposal and collection services are typically provided.

(6) "Municipal solid waste" means wastes such as durable goods, nondurable goods, containers and packaging, food scraps, organic yard waste and miscellaneous inorganic waste from residential (i.e. household), commercial, institutional and industrial sources such as appliances, automobile tires, old newspapers, clothing, disposal tableware, office and classroom paper, wood pallets, and cafeteria wastes. Municipal solid waste does not include solid wastes from other sources such as construction and demolition debris, auto bodies, municipal sludges, combustion ash and industrial process wastes.

(7) "On-premises sales" means sales transactions in which beverages are purchased by a consumer for immediate consumption within the area under the control of the dealer.

(8) "Organic yard waste" means plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities and includes grass, leaves, prunings, brush, shrubs, garden material, Christmas trees and tree limbs up to 4 inches in diameter.

(9) "Recyclable material" or "recyclables" means any material or group of materials that can be collected and sold or used for recycling.

(10) "Recycling" means the process by which solid wastes are separated for use as raw materials, products or replacement of products, including the reuse of organic yard waste, but does not include the incineration of materials for energy.

(11) "Residential waste" means the solid waste generated in occupied single-family and multi-family structures. Also referred to as "household waste".

(12) "Single stream" means a system in which all fibers (including but not limited to paper, cardboard, etc.) and containers (including but not limited to plastic, glass and metal) are commingled for collection into 1 container instead of being sorted into separate commodities and multiple containers.

(13) "Single-family" means either a detached structure (i.e. a house) surrounded by open space or attached structures, such as town or row homes, generally intended for occupancy by a family and where individual trash collection services are typically provided for each structure.

(14) "Source-separated" means recyclable materials, including single stream recyclables, are segregated at the point of generation and kept apart from the waste stream by the generator thereof for the purpose of collection and recycling.

[61 Del. Laws, c. 503, § 1](#); [63 Del. Laws, c. 385, § 1](#); [67 Del. Laws, c. 341, § 1](#); [71 Del. Laws, c. 74, § 2](#); [77 Del. Laws, c. 275, § 1](#);

§ 6053. Universal recycling.

The goal of universal recycling is to create an economy of scale wherein a dramatic increase in Delaware's diversion of recyclables occurs in the most cost effective manner achievable while simultaneously creating job opportunities and significantly reducing Delaware's rate of waste disposal.

Universal recycling shall be implemented in accordance with the following provisions:

(1) Effective no later than September 15, 2011, the Authority shall cease providing curbside recycling services, including yard waste collection, and all persons providing solid waste collection services in the State shall also provide:

a. Single-stream curbside recycling collection services to all of their Delaware single-family residential customers, including delivery of a container for the purpose of storage and collection of recyclables that is adequately sized for the customers use such that recycling is encouraged and disposal of recyclables is discouraged; and the recyclables collection service shall be provided at a frequency of not less than once every other week.

b. Source-separated recycling collection services to dealers who provide on-premise sales, including delivery of a recyclables container that is adequately sized for the premise being served and a frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.

c. All single-family residential and on-premise sales customers with a single charge for the collection of waste and recyclables on their "waste services" bill that is inclusive of the combined waste and recycling collection service costs. Local governments that do not presently bill separately for the costs of waste collection are exempt from this requirement.

d. Notification to all customers that the single-stream recycling service will be provided and instructions on participation prior to September 15, 2011.

(2) Effective no later than January 1, 2013, all persons providing solid waste collection services in the State shall provide:

a. Single-stream recycling collection services to all of their Delaware multi-family residential customers, including providing the multi-family complex with an appropriately sized and centrally located recyclables collection container or containers for the complex being served and ideally in the same proximity as the complex's waste disposal containers. Local governments may require multi-family complex owners to provide their own recyclable collection containers consistent with local requirements.

b. Notification to the multi-family complex management that the single-stream recycling service, including instructions on participation, will be provided.

c. A frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.

d. Written justification to the Department for not providing multi-family recycling collection services where the physical constraints of the site prevent the placement of both trash and recycling containers. Exclusion from multi-family recycling is subject to Department review and approval.

(3) Owners of multi-family complexes must, at least once per calendar year, provide residents with instructions on participating in the complex's recycling program.

(4) The Recycling Public Advisory Council shall issue a report to the Governor and the General Assembly no later than November 1, 2012, with recommendations regarding the implementation of universal recycling in the commercial sector. It is the express requirement of this legislation that universal recycling be adopted by the commercial sector and that all commercial businesses actively participate in a comprehensive recycling program no later than January 1, 2014.

(5) Persons who choose to transport and deliver the solid waste and recyclables they generated on their own property for proper disposal or to a recycling facility of their choice respectively shall not be affected by this subchapter and may continue in this practice.

(6) Nothing shall impair the ownership of recyclable materials by the generator unless and until such materials are placed at curbside or similar location for collection and recycling, and nothing in this chapter shall be construed to prevent any person from collecting, transporting, processing, and marketing recyclable materials in competition with other persons in the same business, including the Authority, provided that the requirements of this subchapter are satisfied.

(7) Persons engaging in the collection, transportation, processing, or marketing of source separated recyclable materials shall conduct such activities in a manner that the source separated recyclable materials enter the marketplace and are otherwise not disposed via a landfill or by incineration.

[77 Del. Laws, c. 275, § 1.](#);

§ 6054. Delaware Recycling Fund.

(a) There shall be established in the State Treasury and in the accounting system of the State a special fund to be known as the Delaware Recycling Fund ("the Fund").

(b) The following revenue shall be deposited into the Fund:

(1) As specified in § 2912 of Title 30, the recycling fee on the sale of beverage containers;

(2) On the last day of each month, the State Treasurer shall credit the Fund with interest on the average balance in the Fund for the preceding month. The interest to be paid to the Fund

shall be that proportionate share, during such preceding month, of interest to the State as the Fund's and the State's average balance is to the total State's average balance;

(3) Any other revenue appropriated or transferred to the account by the General Assembly; and

(4) Repayment of low interest loans.

(c) The Fund shall be used by the Secretary for the exclusive purpose of funding specific activities designed to enhance the State's recycling rate and the diversion of recyclables that would otherwise be land disposed. The Fund may be expended only:

(1) To fund the Recycling Grants and Low Interest Loan Program referenced in § 6055 of this title. Annual funding for the Recycling Grants and Low Interest Loan Program shall be dependent on revenue generated by the Fund;

(2) To pay the limited and reasonable cost of the Department and the Recycling Public Advisory Council to study, evaluate and report on the status and potential for recycling various components of the solid waste stream, with emphasis on those aspects of municipal solid waste and commercial waste necessary to achieve the diversion goals established in § 6056 of this title;

(3) To pay the Department's limited and reasonable costs for administering this subchapter. No greater than 10% of the revenue deposited into the Fund shall be used by the Department for administering this subchapter without approval of the Joint Finance Committee and shall include but not be limited to: promoting the Recycling Grants and Low Interest Loan Program, universal recycling, zero waste principles, development of reporting requirements and related recycling initiatives; and

(4) To pay the Division of Revenue for the costs of administering § 2912 of Title 30.

(d) The Department shall commence the Recycling Grants and Low Interest Loan Program in calendar year 2011 and offer the Program at least annually thereafter until 2014.

(e) The revenue from the Fund and its disbursement via the Recycling Grants and Low Interest Loan Program shall be subject to audit and the recipient of any such funding shall agree to the audit and cooperate with the auditor as a condition of receiving funding.

(f) No expenditures shall be made from the Fund for any grants or loans pursuant to § 6055 of this title without the approval by the Controller General and Director of the Office of Management and Budget of a plan for revenues and expenditures for the period between December 1, 2010, and September 15, 2011.

[77 Del. Laws, c. 275, § 1.](#);

§ 6055. Recycling Grants and Low Interest Loan Program.

(a) There is hereby established a competitive Recycling Grants and Low Interest Loan Program (the "Program") to assist persons engaged in the business of collecting, transporting, processing, or marketing recyclable materials with the implementation of:

(1) Source-separated recyclables collection and processing programs with emphasis on start-up costs for residential single-stream recyclables collection; and

(2) Start-up costs for initiatives which result in the recycling of solid waste materials which would otherwise be land disposed, with emphasis on commercial waste.

The Program shall be administered by the Department, and monies from the Program shall be paid based on approved grant and loan requests. The Department shall be entitled to disburse grant and loan monies for the documented costs of implementing the collection or processing of recyclable materials. The Department shall be entitled to adopt guidelines and procedures for administering the Program and determining eligibility for receipt of funding pursuant to § 6054 of this title. Such procedures shall include provisions for repayment of loans to the Department and may include a rebate program for costs based on, including but not limited to, a prorated share of household customers in a recycling program that may have been in existence prior to creation of this law. The Department shall solicit the commentary of the grant eligible stakeholders during development of the grant guidelines and procedures. The Program shall be funded by monies made available under the provisions of § 6054 of this title.

(b) The Recycling Public Advisory Council, after the receipt of comments by grant and loan eligible stakeholders, shall make recommendations annually to the Department regarding the programmatic priorities for awarding Program funds under this subchapter. The Recycling Public Advisory Council shall provide recommendations regarding the categories and priorities for grants and loans that reflect an informed and representative view of the most urgent and important areas where grant funding will provide the most benefit to the State balancing current needs with those of future generations.

(c) The Department shall review all grant and loan applications and award grants and loans taking into consideration the Recycling Public Advisory Council recommendations. In those cases where the Department's funding decisions differ significantly from the Recycling Public Advisory Council recommendations, the Department shall report to the Recycling Public Advisory Council the justification for such differences.

(d) Any person providing solid waste collection services that is a recipient of a grant or low interest loan from the Delaware Recycling Fund shall not, as a result of implementation of universal recycling, increase rates charged for solid waste collection between such time as they make application for the grant until March 15, 2013.

[77 Del. Laws, c. 275, § 1.](#);

§ 6056. Adopting diversion goals and reporting requirements [Effective Dec. 1, 2010]

It is the intent of the General Assembly that implementation of the requirements of this subchapter reduce the amount of nonhazardous solid waste currently deposited in landfills in this

State by maximizing the recovery of recyclable materials. In order to do so, it will be necessary for the State to embrace the Zero Waste Principles of designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not incinerate or bury them. In that spirit, the following Interim Waste Diversion Goals are established with the understanding that as more data and information regarding the implementation of universal recycling become available, the goals leading up to January 1, 2020 may be modified by the Department as circumstances dictate; however, the January 1, 2020, goals may not be modified without the approval of the General Assembly:

Table 1. Interim Zero Waste Diversion Goals (1)		
Date by which goal is to be achieved	Solid Waste Diverted from disposal	Municipal Solid Waste Diverted from disposal
January 1, 2015	72%	50%
January 1, 2020	85%	60%
(1) By weight		

(1) In order to effectively measure the diversion rates being achieved, all persons, including persons who collect, process or market recyclables, with the exception of those specified in § 6053(5) of this title, must report to the Department on a calendar year basis, no later than February 15 of the following year, the type and quantity of recyclables managed, the method of recycling collection used (single or multiple streams), and the location of the recycling facilities used pursuant to reporting guidance developed by the Department and the Recycling Public Advisory Council. Said reporting guidance shall be developed pursuant to the solicitation of stakeholders responsible for reporting, shall take into account the need for confidentiality of the information reported and shall be finalized no later than December 1, 2010. The first recycling report shall cover calendar year 2011 and shall be due no later than February 15, 2012.

(2) In order to ensure that the waste diversion goals specified in Table 1 of this section above are achieved by the dates specified, the Department, in cooperation with the Recycling Public Advisory Council [RPAC], shall assess progress and recommend to the Governor and General Assembly any additional mechanisms necessary including but not limited to: which waste streams must be diverted from disposal; the parties responsible for ensuring the identified waste streams are diverted from disposal; the date by which the diverted waste streams must be diverted from disposal; implementation of Pay As You Throw; Extended Producer Responsibility; incentive based recycling; waste bans and related requirements. Such assessment shall be completed, inclusive of any draft legislation determined necessary, and submitted to the General Assembly no later than November 1, 2014, as part of the RPAC annual report.

[77 Del. Laws, c. 275, § 1.](#);

§ 6057. Beverage containers -- Findings, intent, prohibitions.

(a) The General Assembly hereby finds that beverage containers are a valuable recyclable material and a major source of nondegradable litter in this State and that the collection and

disposal of this litter and solid waste constitutes a great financial burden for the citizens of this State; and that, in addition to this unnecessary expenditure of tax moneys, such litter unreasonably interferes with the enjoyment of life and property by our citizens; and that the practice of littering and disposal of a recyclable material is not compatible with previously adopted policies of the State in regard to proper use and protection of our natural resources.

(b) It is the intent of the General Assembly to increase recycling significantly, inclusive of beverage containers, thereby conserving valuable natural resources, removing the blight of litter on the landscape of the State caused by the disposal of beverage containers and other packaging, and reduce the increasing costs of litter collection and disposal.

(c) Prohibitions. -- No beverage shall be sold or offered for sale in this State:

(1) In containers connected to each other with plastic rings or similar devices which are not classified by the Department as biodegradable, photodegradable or recyclable.

(2) In a beverage container which is not recyclable or refillable.

[61 Del. Laws, c. 503, § 1](#); [64 Del. Laws, c. 57, § 1](#); [67 Del. Laws, c. 341, § 2](#); [77 Del. Laws, c. 275, § 1](#);

§ 6058. Establishment, composition and responsibility of the Recycling Public Advisory Council.

(a) There is hereby established a Recycling Public Advisory Council (the "Council"). The Council shall be composed of 16 members who shall be appointed by the Governor as follows:

(1) One member from the Department;

(2) One member from the Authority;

(3) One member representing county governments, with such member being recommended by the Delaware Association of Counties;

(4) One member representing municipal governments, with such member being recommended by the Delaware League of Local Governments;

(5) One member representing the recycling industry;

(6) One member representing the waste hauling industry;

(7) Two members, 1 representing the soft drink industry and 1 representing the alcohol beverage industry, representing the beverage industry;

(8) One member representing the Delaware State Chamber of Commerce;

(9) One member representing the Delaware restaurant industry; and

(10) Five members representing community-based or public-interest groups.

(11) One member representing the Delaware Food Industry Council.

(b) Members of the Council, except for those appointed pursuant to paragraphs (a)(1) and (2) of this section above, shall serve for terms up to 3 years and may not serve more than 2 consecutive terms but may again serve after 1 year off of the Council. Members shall be appointed for staggered terms so that no more than 5 appointments shall expire in any 1 calendar year. Members may be reimbursed for travel to and from meetings. The Governor shall appoint a Chairman from among the 16 members. Actions of the Council shall be approved by a majority vote of the Council. At least 9 members of the Council shall constitute a quorum. The Council may adopt bylaws as it deems appropriate to serve the purposes of this subchapter.

(c) The Recycling Public Advisory Council shall:

(1) Advise the Department and the Authority on all aspects of recycling;

(2) Advise the Department in developing criteria for the Recycling Grants and Low Interest Loan Program and selection of applications as well as provide an annual assessment of the revenue needed to satisfy the grant requirements;

(3) Maintain, in conjunction with the Department and the Authority, a methodology for measuring recycling rates;

(4) Provide advice and recommendations regarding the recycling outreach and education programs conducted by the Authority and/or the Department;

(5) Report to the Governor and the General Assembly annually by November 1 of each year on the status of recycling activities in Delaware. Said report shall include, but not be limited to the following:

a. Status of attainment of the recycling goals specified in § 6056 of this title;

b. An accounting of the recycling grants and loan program and any recommendations for future funding of the grants and loan program;

c. An assessment of the activities of both the Department and the Authority in achieving the recycling goals specified in § 6056 of this title;

d. An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste;

e. Such other recommendations as the Council shall deem appropriate; and

f. Use the definitions of "recycling" and "municipal solid waste" as stated by the United States Environmental Protection Agency in its document EPA530-R-97-011 dated September 1997. The Council shall be able to adopt changes to these definitions.

(d) The Department, in concert with the Authority and the Council, shall:

(1) Monitor the State's recycling initiatives and measure Delaware's achievements toward attainment of the recycling goals specified in § 6056 of this title;

(2) Design and implement public educational efforts aimed at increasing public awareness of recycling opportunities;

(3) Provide technical assistance to local entities to assist them in increasing their recycling rates; and

(4) Provide administrative support to the Council.

[77 Del. Laws, c. 275, § 1.](#);

§ 6059. Enforcement, civil and administrative penalties.

(a) Whoever violates this subchapter, or any rule or regulation promulgated there under, or any order of the Secretary, shall:

(1) For the first conviction, be fined not less than \$100 nor more than \$500 for each day of violation;

(2) For each subsequent conviction for the same offense within a 10-year period, be fined not less than \$500 nor more than \$1,500 for each day of violation;

(3) In the Secretary's discretion, the Secretary may endeavor by conciliation to obtain compliance with all requirements of this subchapter. Conciliation shall be giving written notice to the responsible party:

a. Specifying the complaint;

b. Proposing a reasonable time for its correction;

c. Advising that a hearing on the complaint may be had if requested by a date stated in the notice; and

d. Notifying that a proposed correction date will be ordered unless a hearing is requested.

If no hearing is requested on or before the date stated in the notice, the Secretary may order that the correction be fully implemented by the proposed date or may, on the Secretary's own initiative, convene a hearing, in which the Secretary shall publicly hear and consider any relevant submission from the responsible party as provided in § 6006 of this title.

(b) Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board, in accordance with § 6008 of this title.

Appendix B.

Recycling Public Advisory Council Members

Brock J. Vinton II, RPAC Chairman – Representing community-based or public-interest group
Citizens Solid Waste Solutions Commission

Paul R. Bickhart – Representing the recycling industry
Recycling Express of Delaware, Inc.

Michael D. Parkowski – Representing the Delaware Solid Waste Authority
Chief of Business and Governmental Services, Delaware Solid Waste Authority

Richard C. Cecil – Representing the Delaware Association of Counties
Executive Director, Delaware Association of Counties

Marianne Cinaglia – Representing community-based or public-interest group
Delaware Environmental Alliance for Senior Involvement

Marjorie A. Crofts – Representing the Dept. of Natural Resources and Environmental Control
Director, Division of Waste and Hazardous Substances

George Danneman – Representing the soft-drink industry
Delaware Beverage Association

Kelly Davis – Representing community-based or public-interest group
Educator, Delaware Technical and Community College Owens Campus

Michael Fusca – Representing the alcohol beverage industry
Standard Distributing Company

Brenna Goggin – Representing community-based or public-interest group
Delaware Nature Society

Robert A. Ziegler – Representing the Waste hauling industry
Republic Services

Basil Kollias – Representing the Delaware Chamber of Commerce

Carrie Leishman – Representing the restaurant industry
Delaware Restaurant Association

Coralie Pryde – Representing community-based or public-interest group
League of Women Voters

Julie Miro Wenger – Representing the Delaware Food Industry Council

Stan Mills – Representing the Delaware League of Local Governments
Commissioner, City of Rehoboth Beach

Appendix C. DSM Measurement Report

Final Report
October 2013

Prepared for:
Recycling Public Advisory Council
c/o DNREC
89 Kings Highway
Dover, DE 19901

State of Delaware Assessment of Municipal Solid Waste Recycling For Calendar Year 2012



Prepared by:
DSM Environmental Services, Inc.
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Windsor, VT 05089-0002
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RESULTS

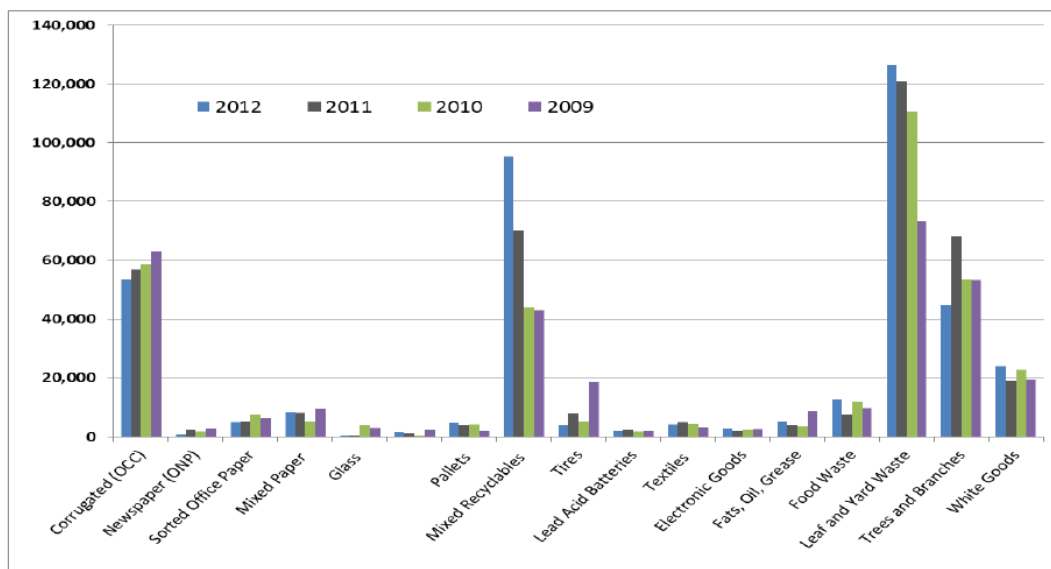
Table 2 (on the next page) presents the 2012 results together with the 2011, 2010 and 2009 results to enable comparison. Because of changes in the way recyclables are being collected under the Universal Recycling law, Table 2 also presents DSWA managed recycling separately for 2012, 2011, 2010 and 2009. The difference between the 2012 and 2011 recycling is then reported for DSWA alone and for all other MSW recycling enabling a more straightforward comparison of changes in recycling activity in the State. Because of the large number of materials categories, and changes in recycling activity and material flow between years, Table 2 is heavily footnoted, and followed by a detailed discussion of the 2012 Results by material type.

The 2012 survey results indicate that material diverted for recycling increased by 3.1 percent, or roughly 12,000 tons (rounded) between 2011 and 2012. Although CY 2009 and 2010 tonnages are shown, they are *not included* in the calculation of the difference. However if the Tree and Branch category volumes were excluded from this comparison, recycling tonnage increased 10.3 percent between 2011 and 2012. And if the Tree and Branch volumes for 2012 were carried as the same tonnage levels as 2011, then the 2012 results showed a 6.2 percent increase over 2011. This comparison is helpful because the impact of landscaping debris on the results is so variable, as discussed further in this section.

It is DSM's opinion that the majority of the increase can be directly attributable to the Universal Recycling Law, combined with better reporting due to the enforcement of the mandatory reporting requirement and a small increase in economic activity over the past year. A detailed explanation is presented below.

Figure 1 compares the major material category totals for 2012, 2011, 2010 and 2009 for all materials, including those recycled through DSWA programs and/or facilities. As illustrated by Figure 2, most of the increase is from single stream recycling (labeled as "Mixed Recyclables").

FIGURE 1: COMPARISON OF MATERIAL RECYCLED, CY 2012 - 2009 (TONS BY MATERIAL)



State of Delaware
Assessment of MSW Recycling for CY 2012



TABLE 2: COMPARISON OF MSW MATERIALS RECYCLED IN DELAWARE, CY 2012, 2011, 2010 AND 2009

Material Category	CY 2012			CY 2011			CY 2010			CY 2009			Difference, 2012 - 2011			
	All Other (tons)	DSWA (tons)	Total (tons)	All Other (tons)	DSWA (tons)	Total (tons)	All Other (tons)	DSWA (tons)	Total (tons)	All Other (tons)	DSWA (tons)	Total (tons)	All Other (tons)	DSWA (tons)	Total Dif. (%)	Total (tons)
Paper, Paper Packaging																
Corrugated (OCC)	53,288	252	53,540	53,938	2,858	56,796	50,954	7,553	58,507	55,984	6,997	62,981	-651	-2,606	-5.7%	-3,256
Newspaper (ONP)	909		909	2,369		2,369	1,769		1,769	2,728		2,728	-1,460		-61.6%	-1,460
Sorted Office Paper **	5,001		5,001	5,078		5,078	7,449		7,449	6,359		6,359	-77		-1.5%	-77
Mixed Paper (1)	8,174		8,174	8,064		8,064	5,041		5,041	9,218	148	9,366	110	0	1.4%	110
Subtotal:	67,372	252	67,624	69,449	2,858	72,307	65,212	7,553	72,765	74,290	7,145	81,435	-2,078	-2,606	-6.5%	-4,683
All Other Packaging																
Glass (2)	332		332	208		208	4,011		4,011	2,850	81	2,931	124		59.4%	124
Plastic Film /Wrap (3)	1,452		1,452	974		974	425		425	2,178		2,178	478		49.0%	478
Plastic Containers	30		30	223		223	37		37	27		27	-193		-86.6%	-193
Aluminum Cans	696		696	728		728	546		546	171		171	-32		-4.4%	-32
Pallets (4)	4,717		4,717	3,842		3,842	4,186		4,186	1,954		1,954	874		22.8%	874
Mixed Recyclables (5)	33,079	62,211	95,290	16,002	54,133	70,135	4,755	39,051	43,806	4,950	38,075	43,025	17,077	8,078	35.9%	25,155
Subtotal:	40,306	62,211	102,517	21,979	54,133	76,111	13,960	39,051	53,011	12,129	38,156	50,285	18,327	8,078	34.7%	26,406
Vehicle Waste																
Tires (6)	2,872	951	3,823	6,831	989	7,820	5,049		5,049	18,735		18,735	-3,959	-38	-51.1%	-3,959
Lead Acid Batteries (7)	2,052		2,052	2,341		2,341	1,893		1,893	1,917		1,917	-290		-12.4%	-290
Oil Filters	379	0	379	234	58	292	724	425	1,148	195	398	593	144	-58	29.6%	86
Subtotal:	5,303	951	6,254	9,407	1,047	10,454	6,440	425	6,865	20,847	398	21,245	-4,105	-58	-40.2%	-4,162
Special Wastes			0			0			0			0				0
Carpet	0		0	742		742	422		422	15	63	78	-742		-100.0%	-742
Textiles (8)	4,284		4,284	4,946		4,946	4,413		4,413	3,155		3,155	-662		-13.4%	-662
Florescent Bulbs	15		15	8		8	7		7	38		38	7		95.0%	7
Electronic Goods	839	1,933	2,772	240	1,883	2,123	241	1,909	2,151	449	2,023	2,472	599	50	30.6%	649
Other Batteries	3	44	47	48	48	96	101		101	3.48		3	-45	-4	-50.7%	-49
Subtotal:	5,141	1,977	7,118	5,984	1,930	7,914	5,185	1,909	7,094	3,662	2,086	5,748	-843	47	-10.1%	-796
Organic Wastes			0			0			0			0				0
Fats, Oil, Grease	5,103		5,103	4,029		4,029	3,557		3,557	8,826		8,826	1,073		26.6%	1,073
Food Waste	12,701		12,701	7,624		7,624	11,904		11,904	9,812		9,812	5,077		66.6%	5,077
Leaf and Yard Waste	126,463	0	126,463	116,756	4,111	120,867	95,594	14,865	110,459	65,886	7,259	73,145	9,707	-4,111	4.6%	5,596
Trees and Branches	44,888		44,888	68,157		68,157	53,580		53,580	53,281		53,281	-23,269	0	-34.1%	-23,269
Clean Wood	5,410		5,410	5,152		5,152	2,371		2,371	0		0	258	0	5.0%	258
Subtotal:	194,565	0	194,565	201,718	4,111	205,829	167,007	14,865	181,872	137,805	7,259	145,064	-7,154	-4,111	-5.5%	-11,265
Metals			0			0			0			0				0
White Goods	23,454	458	23,912	18,444	768	19,212	21,676	973	22,649	18,174	1,270	19,444	5,010	-310	24.5%	4,700
Subtotal:	23,454	458	23,912	18,444	768	19,212	21,676	973	22,649	18,174	1,270	19,444	5,010	-310	24.5%	4,700
Other			0			0			0			0				0
Mixed Plastics (9)	3,965		3,965	2,063		2,063	2,705		2,705	669		669	1,901	0	92.1%	1,901
Subtotal:	3,965	0	3,965	2,063	0	2,063	2,705	0	2,705	669	0	669	1,901	0	92.1%	1,901
Total	340,104	65,849	405,953	329,045	64,846	393,891	282,186	64,776	346,962	267,576	56,314	323,890	11,059	1,041	3.1%	12,100

TABLE 2 NOTES:

**** Sorted Office Paper Correction **** 2011 SOP tonnage has been adjusted down from 13,078 to 5,078 to correct an error made in a 2011 report.

- (1) Mixed Paper: All mixed paper reported was included as MSW even in cases where processors did not reveal sources.
- (2) Glass: Glass was handled directly by beverage distributors for CY 2010 and CY 2011.
- (3) Plastic Film / Shrink Wrap: This category includes plastic retail bag recycling as most generators were unable to report on plastic bags separate from film and shrink wrap quantities.
- (4) Pallets: Only pallets composted or ground for mulch are included in the totals reported for MSW recycling.

TABLE 2 CONTINUED:

- (5) Mixed Recyclables: Single stream material collected from municipal curbside recycling programs, including Wilmington, and collected by subscription haulers from both households and businesses. The DSWA column includes DSWA DROP-OFFS AND SINGLE STREAM MATERIAL DELIVERED DIRECTLY TO DSWA FACILITIES.
- (6) Tires: As in 2011, a large amount of tires were processed for tire derived fuel in 2012, which is excluded from the EPA recycling rate. The balance went to end uses such as crumb rubber and engineered products including drainage material, and playground surfacing, which is included in the EPA rate.
- (7) Lead Acid Batteries: The total reported in 2010 of 14,205 tons was corrected to 1,893 to reflect a data reporting and recording error caught when 2011 reports were filed.
- (8) Textiles: Used clothing (including shoes) exported for recycling or reuse. The end uses change based on the condition and changing markets. Typically clothing is sorted into 4 color categories and sold as rags, or bagged as is and sold as clothing. No breakdown of the actual end use is available.
- (9) Mixed Plastics may include plastic packaging and other waste plastic generated by manufacturers but sent off site but are reported as mixed plastics by the recycler. Roughly 50% are estimated to qualify as "MSW recycling" consistent with the estimates made in prior years.

As illustrated by Table 2 total recovery, inclusive of DSWA recycling activity, increased by 12,011 tons. That increase was made up predominantly by recyclable materials not delivered to DSWA facilities. This is the result of a combination of factors, as described by material category below, but primarily is the result of increased private sector recycling activity stimulated by the Universal Recycling Law and better reporting due to the mandatory reporting law.

PAPER RECYCLING

CY 2012 data shows a dramatic reduction in the total Paper and Paper Packaging material recycled in the State of Delaware. Overall, paper recycling showed an initial drop of 12,000 tons (rounded). Sorted Office Paper (SOP) showed the single largest reduction, 8,200 tons (rounded). As a result of this dramatic variance, DSM performed follow-up inquiries and discovered one paper recycler made a reporting error on a 2011 survey form. This error was corrected for the 2011 data included in this report and reduced the 2011 SOP category reporting by 8,000 tons. This correction reduced the final paper material reduction to a loss of only 4,700 tons (rounded), and the SOP category, after the correction, was within 80 tons (rounded) of the 2011 reported data.

DSM believes a number of factors have contributed to the variance in the paper material recycling category between CY 2011 and CY 2012 as bulleted below.

- An increase in reliance on single stream recycling collection over separate collection of mixed paper and other materials has impacted the volume of paper reported as recycled. This does not necessarily mean a real decrease in total paper and OCC recycling; some portion of the reduction will be a re-categorization. For example, during previous reporting years some handlers reported seeing an increase in the amount of corrugated cardboard material passing through single stream transfer stations with the material classified as mixed recyclables, not OCC.
- National economic trends may continue to impact OCC's use as a packaging material, and general technology trends have resulted in the migration of office record keeping from paper to digital. These industry trends would suggest a reduction in paper and OCC material

is to be expected and is the result of real industry wide material decline in these categories. This however might be slightly counteracted by an increase in economic activity.

- During both 2011 and 2012 DSM observed some merging activity within paper and OCC handling companies. Different paper handlers categorize paper recyclables in different ways. In addition, this period of handler transition resulted in an over reporting error by one large handler during 2011. During CY 2012 data collection this handler noted that a large portion of the 2011 reported SOP material may have been collected out of state but processed in Delaware, resulting in an accidental inflation of reported material for the 2011 CY period. This error has been adjusted in the 2011 numbers in this report.
- Finally, many large national brands are migrating (waste and) recycling accounts away from local haulers to national waste brokers and haulers, some who are located outside of Delaware. Because these account managers change, and the brokers change, reliance on the contact used on the survey form from the prior year is insufficient. This constant change in reporting contacts can lead to non-reporting by some generators.

While Delaware saw a reduction in the total amount of Paper and OCC reported as handled during CY 2012, the increase in material reported as Single Stream suggests the real reduction in Paper and OCC is less severe than the 4,700 tons shown by Table 2 above.

OTHER PACKAGING WASTE

Recycling of packaging wastes are up by 26,400 tons primarily due to the increase in single stream recycling activity across Delaware. Single stream recycling was up over 25,000 tons (rounded) for CY 2012. It appears that almost every handler saw an increase in single stream material handling with a small number seeing a dramatic increase in material handling.

Other changes in packaging waste recycling include:

- Recycling of glass reported separately held steady with CY 2011 confirming the large reduction between 2010 and 2011 was due to single stream recycling accepting glass and the sunset of the mandated beverage container redemption program that required wholesalers and distributors of glass beverage containers to handle return containers. It should also be emphasized that glass material is still being captured and recycled. The glass tonnage is now captured as part of the single stream material data. However there is no way to confirm how much glass is collected and recycled through single stream for comparison against prior separate collection programs.
- There was an increase in shrink wrap recycling, which combined with the increase in pallet material reported, is suggestive of a slight upward trend in the economy, specifically retail and industry; both pallets and film are used in the transportation of retail and industry products and material.

SCRAP METAL

White goods (appliances) showed a 4,700 ton increase during 2012 over 2011. This may be indicative of a stabilizing economy with continued demand for new appliances, or better reporting. It should be noted that handlers of White Goods may carry large tonnage inventories from one

calendar year to another. As September is a heavy release period for new appliance models high volume appliance purchasing generally occurs in the Fourth Quarter of the calendar year. This can result in material recycled during the first quarter of the calendar year actually being generated from sales in the fourth quarter of the previous calendar year.

DSM no longer collected reporting of all other scrap metals not counted as MSW recycling to reduce the burden on scrap metal recyclers to report on all commodities.

GREEN WASTE

CY 2012 saw a marked decrease in the recovery of green waste. Leaf and yard waste recovery was up by a little over 5,500 tons over CY 2011, while tree and branch waste was down 23,000 tons (rounded) compared with 2011.

Overall, the difference is likely explained by the following factors:

- Some shifting in the allocation of material from trees and branch material to leaf and yard material is likely. Handlers of these materials tend to estimate the allocations because they do not track the material in the same way as this survey.
- There was a reduction in the number of severe storms from three (Hurricane Irene, Tropical Storm Lee and Hurricane Rina) during 2011 to only two (Hurricane Isaac and Hurricane Sandy) during 2012. Also, Hurricane Sandy (the most damaging 2012 storm) occurred at the end of October and clean up and counting of some of the debris related to this storm may not have occurred until the beginning of 2013. Hurricane Irene occurred in August and the clean-up was likely completed within the calendar year 2011. Sandy appears to have had more of a coastal impact whereas Irene's impact was more aggressively inland.
- In addition, the demand of the Wilmington Organic Recycling Center (WORC) and the Blue Hen Organics facilities may help to drive increased green waste recycling, or better reporting of diverted green waste.
- A number of large material handlers do not operate with scales. Instead, these handlers measure volume and material handling in cubic yards. The total annual yardage material figure is then split between yard waste and tree waste with the split often approximated as a 60 percent yard waste and 40 percent tree waste with the densities assigned by DSM if the handler does not report in tons. This process relies heavily on estimates by the material handler for the split and by DSM for the density calculation for the material category.
- For the 2012 reporting period, based on feedback from material handlers, DSM revised down the weight per cubic yard allocation for Tree and Branch material compared with the 2011 year. One large contributor had reported an average yardage weight for their heavier material of 800 pounds per cubic yard. This same reporter noted that the average yardage weight for their heavier material was only 600 pounds per cubic yard for the 2012 period. These differences in the density have a direct impact on the final reporting tonnage for the green waste material handled and reported in Delaware.

FOOD WASTE

There was an overall increase of 5,000 tons (rounded) in food waste composting reported for 2012. Fats, oil and grease also saw an increase of 1,000 tons (rounded) compared with 2011. An increase in food waste composting for CY 2012 is likely the result of having several facilities offering composting in-state as an alternative to landfilling of these organics, combined with more haulers offering food waste collection services and more businesses (mainly supermarkets and some large restaurants) participating in food waste separation programs. This trend is expected to continue.

VEHICLE WASTE

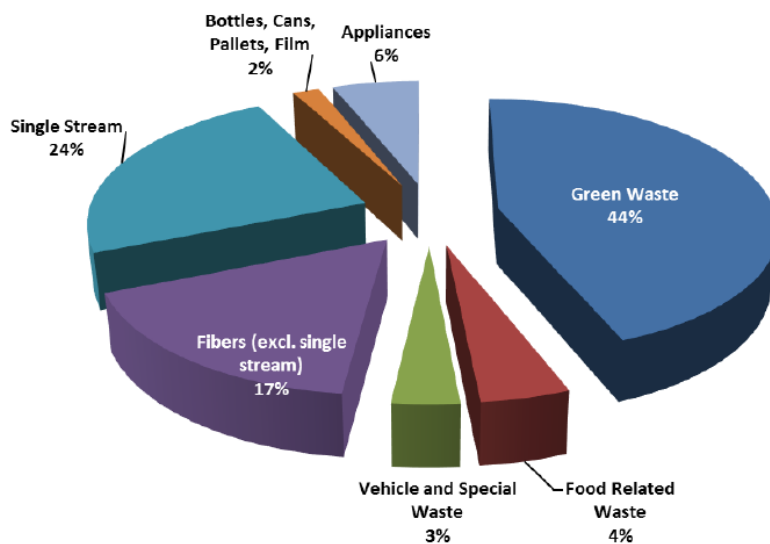
The tons of tires reported as recovered for other uses decreased by 4,000 tons (rounded). This decrease was largely attributable to several critical reporters that either did not provide data, were no longer an active tire recycler, or provided data that showed a reduction in materials handled.

There has been an industry trend diverting used tires from traditional recycling to fuel – either going to waste to energy facilities in the region, or being processed for tire derived fuel and sold to facilities farther away. This may be because tires were no longer demanded for construction at the Cherry Island Landfill – which would count as recycling – whereas tires going to waste-to-energy do not. This may also be the result of one tire recycler no longer being active in the region that processed tires for engineering applications.

SUMMARY

Figure 2, below illustrates the breakdown of MSW materials recovery, by material type, for Delaware for 2011, including DSWA recycling activity. Figure 2 emphasizes the growing role of single stream recycling and leaf and yard waste composting in materials recycling in Delaware.

FIGURE 2: MATERIALS RECOVERY BY GENERAL MATERIAL CATEGORY INCLUDED IN EPA DEFINITION OF MSW RECYCLING (STATE OF DELAWARE, CY 2011)



RESIDENTIAL VS. COMMERCIAL RECYCLING ACTIVITY

DSM estimated the percentage of each material recycled and classified as MSW generated by a residential as opposed to a commercial source. These allocations are shown in Table 3.

While in some cases the source of the material was clear, in others DSM was required to make our best professional judgment as to the source of the material. Since EPA does not attempt to quantify residential and commercial recycling separately, generally acceptable guidelines for allocation of materials recycling to the residential and commercial sector are not available.

In other cases, DSM worked with RPAC to agree upon acceptable allocations of materials recycling to the commercial and residential sectors. For example, 90 percent of all of white goods are reported as residential recycling. Leaf and yard waste totals are allocated as 8 percent commercial with the balance residential consistent with the 2004 survey of yard waste generators and processors.³ Finally trees and branches are allocated as 11 percent commercial, and the balance residential, consistent with the same 2004 survey. This percentage may need to be revisited with the growth in yard and tree waste processing in light of the landfill bans.

It should be noted when reading Table 3 that in the past significant amounts of newspaper, corrugated cardboard and mixed paper generated by residential sources were reported separately by DSWA, while now all paper, with the exception of a declining stream of separated cardboard, collected by DSWA is a single stream of paper and containers and reported under “packaging”. This makes year to year comparisons of paper recycling in this report and in aggregate more difficult.

³ This 2004 report surveyed landscapers and other generators or processors of yard waste, brush and tree waste and found roughly 8 percent of leaf and yard waste and 11 percent of tree waste was stated to be from commercial sources.

TABLE 3: ESTIMATE OF RESIDENTIAL VS. COMMERCIAL MSW RECYCLING ACTIVITY (CY 2012)

Material Category	Residential (tons)	Commercial (tons)	Total MSW (tons)
Paper			
Corrugated (OCC)	245	53,295	53,540
Newspaper (ONP)	0	909	909
Sorted Office Paper	9	4,992	5,001
Mixed Paper	23	8,151	8,174
Subtotal:	276	67,348	67,624
Packaging			
Glass	215	117	332
Plastic Film / Shrink Wrap (1)	0	1,452	1,452
Plastic Containers	0	30	30
Aluminum Cans (2)	516	180	696
Pallets	0	4,717	4,717
Mixed Recyclables (3)	66,317	28,973	95,290
Subtotal:	67,048	35,469	102,517
Vehicle Waste (4)			
Tires	3,059	765	3,823
Lead Acid Batteries	1,641	410	2,052
Oil Filters	303	76	379
Subtotal:	5,003	1,251	6,254
Special Wastes			
Carpet	0	0	0
Textiles (5)	4,284	0	4,284
Florescent Bulbs	0	15	15
Other Batteries	43	4.7	47.3
Electronics (6)	1,353	1,419	2,772
Subtotal:	5,679	1,438	7,118
Food Related Wastes			
Fats, Oil, Grease	0	5,103	5,103
Food Waste	0	12,701	12,701
Subtotal:	0	17,804	17,804
Green Waste			
Leaf and Yard Waste (7)	116,599	9,863	126,463
Trees and Branches (8)	39,902	4,987	44,888
Clean Wood	0	5,410	5,410
Subtotal:	156,501	20,260	176,761
Metals			
White Goods (9)	21,521	2,391	23,912
Subtotal:	21,521	2,391	23,912
Other			
Mixed Plastics (10)	0	3,965	3,965
Subtotal:	0	3,965	3,965
Total:	256,028	149,925	405,953

TABLE 3 NOTES (NUMBERS MAY NOT ADD DUE TO ROUNDING):

- (1) Includes retail bags returned as part of grocery and retail recycling programs.
- (2) Aluminum can recycling reported by scrap metal dealers assumed to be 50% residential and 50% commercial.
- (3) Single stream recycling through Wilmington and other municipalities assumed to be 100% residential, and deliveries to DSWA drop-offs and transfer stations, 80 percent residential. All other single stream recycling reported was estimated as residential and commercial by the reporting entity.
- (4) All vehicle wastes recycled are assumed to be 80% residential and 20% commercial. This is consistent with past reporting. Reported source of tires was 80% cars by one major tire recycler.
- (5) All textiles are considered residential consistent with past reporting. The documented source of textiles is unknown, however DSM assumes most textiles came from residential sources. Also textiles reused are excluded under EPA but included here since reuse versus recycling cannot be determined.
- (6) Electronics collected by DSWA are assumed to be 70% residential, and all other electronics assumed to be 100% commercial consistent with past reporting.
- (7) Leaf and Yard waste allocations were made using the same percentage used in previous DSM reports.
- (8) Trees and branches waste allocations were made using the same percentage used in previous DSM reports.
- (9) White goods collected by DSWA assumed to be 90% residential and 10% commercial. All other white goods collected by scrap metal recyclers and retailers assumed to be 100% residential consistent with prior reporting.
- (10) Mixed plastics are assumed to be 100% commercial consistent with past reports.

Appendix D. Outreach Examples

Figure D.1 – “Delaware Recycles” Logo, used to unify and brand outreach efforts



D.2 – Radio Advertisements

Ongoing 60 second radio ads from late spring 2012 – late spring 2013. Messages are changed regularly. The stations Eagle 97.7, Cool 101.3, and La Exitosa 930 air at least 24 advertising spots per month. The stations WSTW 93.7 and WDEL 1150 air at least 13 spots per month. All stations air the spots on their respective websites as well as providing links to www.recycling.delaware.gov. This is a sample script:

Jingle - *“Delaware Recycles. It’s second nature.”*

Attention Delaware businesses and institutions! To help you comply with the commercial aspect of Delaware’s Universal Recycling Law, assistance is now available. Many businesses and organizations have already taken advantage of the growing recycling opportunities in Delaware. Materials commonly recycled in the commercial sector may include cardboard, food waste, scrap lumber and scrap metals, office paper, and various plastics. Do you want to know what recyclables are in your waste stream? Are you wondering how to start a recycling program? Free state-sponsored waste assessments are available to small businesses. To schedule your waste assessment call DSWA at 800-404-7080 or DNREC at 302-739-9403. To learn more about legislative requirements, grant funding, and commercial recycling toolkits please visit: recycling.delaware.gov, that’s recycling.delaware.gov

Jingle - *“Delaware Recycles. It’s second nature.”*

Figure D.3 – Website: www.recycling.delaware.gov

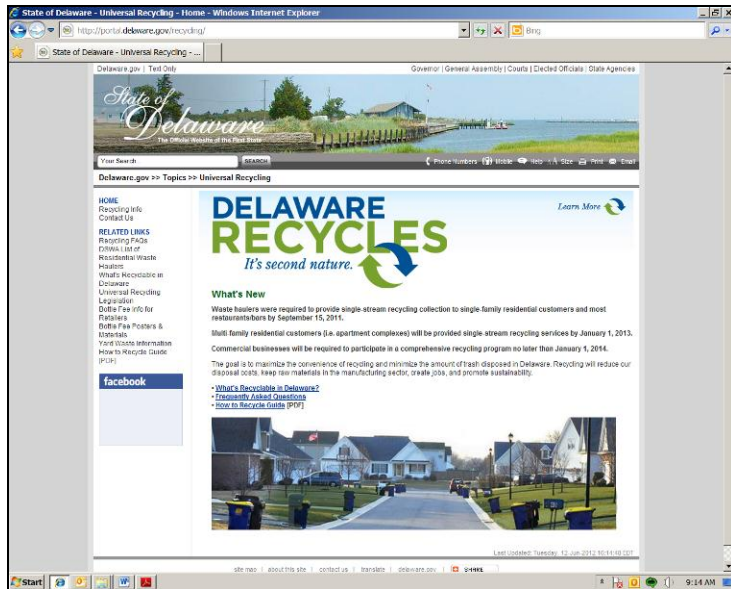


Figure D.4 – Facebook Page: www.facebook.com/delawarerecycles

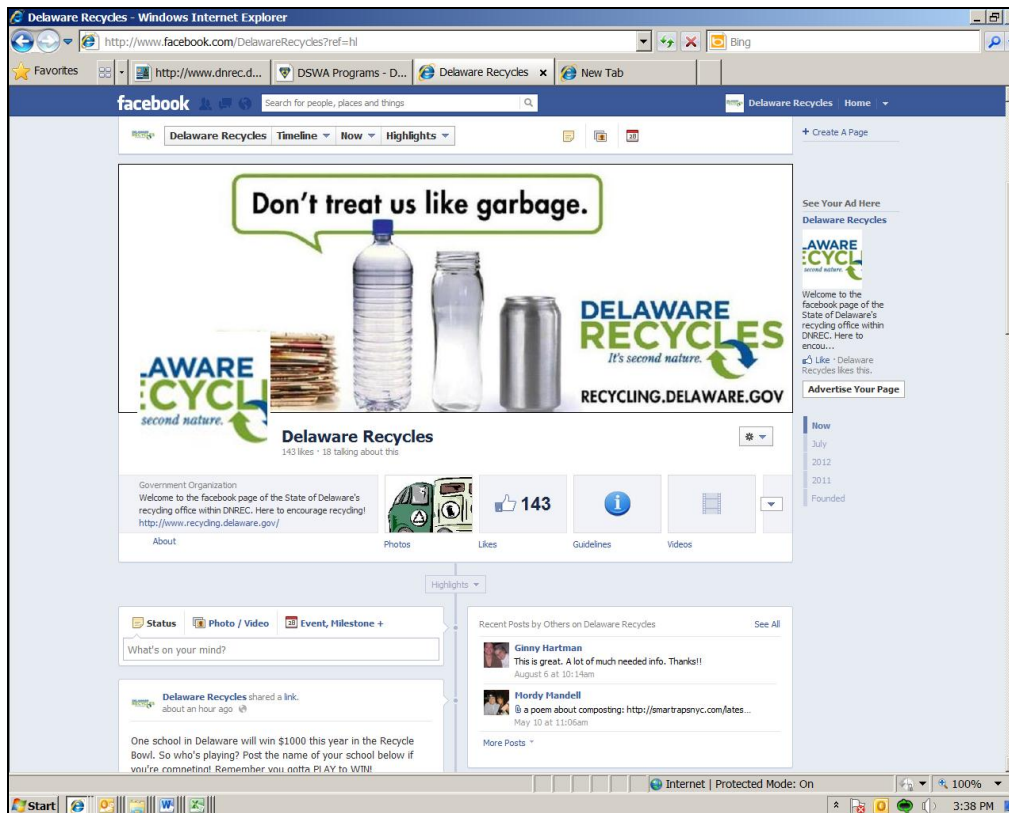


Figure D.5 – WMDT TV Multi-family Recycling Commercial



Available on YouTube at: <http://www.youtube.com/watch?v=K-igoDd-JPY>

Figure D.5 – How to Recycle Guide

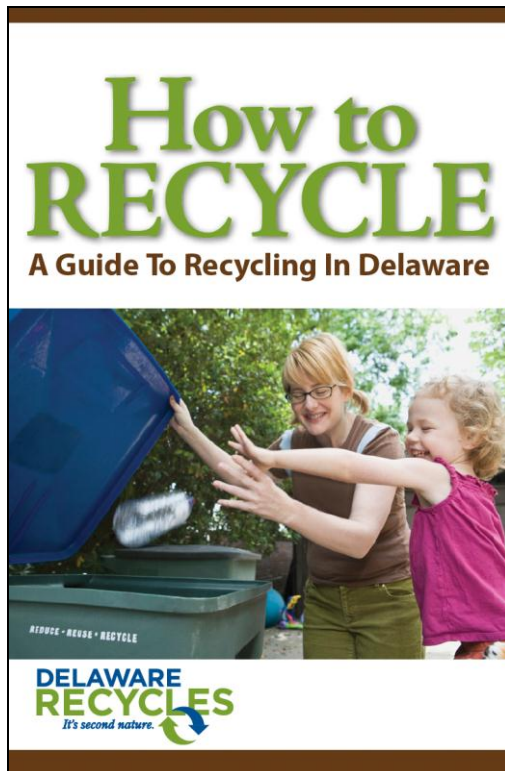


Figure D.6 – Composting Brochure



Appendix E. Background of Recycling Efforts in Delaware

The State of Delaware first began promoting recycling in 1975 with the passage of the Delaware Solid Waste Authority's enabling legislation. This led to the opening of the Delaware Reclamation Plant, which held the title of the largest recycling/reclamation project in the world for nearly 11 years. About 2.5 million tons of municipal solid waste and 0.5 million tons of sewage sludge were processed through this plant. This facility was shut down in 1993 and the plant was modified to operate as the Delaware Recycling Center which processes and markets all the recyclables from the 'RECYCLE DELAWARE' Drop-Off Program.

The next major milestone was the implementation of the Beverage Container Law in 1979 designed to prevent roadside littering.

In 1990, the statewide drop-off recycling program, known as 'RECYCLE DELAWARE', was established by the Delaware Solid Waste Authority. The DSWA currently operates over 140 'RECYCLE DELAWARE' centers and collects about 27,500 tons/year of recyclables. Included are brown, green and clear glass bottles, plastic bottles, newspaper and magazines, aluminum and steel cans (including aerosols), plastic grocery bags, textiles, motor oil and oil filters, corrugated cardboard, and household batteries (the batteries are not recycled, but disposed of properly).

Despite these recycling milestones, Delaware's former Governor, Thomas Carper, received frequent letters and phone calls from Delaware residents requesting implementation of curbside collection of recyclables. These requests spurred Governor Carper to call a meeting in late 1998 with representatives of the DNREC, the Delaware Economic Development Office (DEDO) and the DSWA to discuss the feasibility of implementing curbside collection of recyclables in Delaware. The result of this meeting was the issuance of Executive Order No. 60 establishing the Citizens' Work Group on Recycling to evaluate recycling in Delaware. The work group would also recommend ways to increase recycling in Delaware.

In the spirit of conservation and pursuant to the report "A Course of Action to Increase Recycling in the State of Delaware," which was developed by and contained the recommendations of the Citizens' Work Group on Recycling, Governor Thomas R. Carper signed Executive Order Eighty-Two which:

1. Established the goal of a thirty (30) percent diversion rate for recyclables from Delaware's residential solid waste stream.
2. Required the Department of Natural Resources and Environmental Control (DNREC), Division of Air and Waste Management (DAWM) to work in concert with the Delaware Solid Waste Authority (DSWA) and the Recycling Public Advisory Council (RPAC) to:
 - a) develop a method for measuring recycling,
 - b) establish a recycling grant program,
 - c) establish a public outreach and education program aimed at educating the general public and students on the value of recycling as well as to increase the recycling rate,
 - d) provide technical assistance to local entities to increase the recycling rate, and

- e) provide administrative support to the RPAC.
- 3. Established the nine (9) member RPAC and tasked the RPAC with:
 - a) advising DNREC and DSWA on all aspects of recycling,
 - b) advising DNREC on developing grant criteria,
 - c) advising DNREC and DSWA on outreach activities to increase recycling, and
 - d) developing an annual report due on December 1st of each year detailing the status of recycling activities within Delaware.

Governor Minner appointed the members of the RPAC early in her Administration and the first RPAC meeting was held on February 27, 2001. DNREC also hired an Environmental Scientist and a Community Relations Officer to assist the Council. The Environmental Scientist aided the Council in developing the method for measuring recycling and provided recycling technical assistance to Delaware's communities and local governments.

The RPAC contracted a study on residential curbside recyclables collection in New Castle County. The final report, titled "Evaluation of Enhanced Residential Waste and Recyclables Collection and Processing for New Castle County", was published in 2003 by DSM Environmental Services, Incorporated. The report concluded that curbside collection of recyclables could be done at least as, if not more, cost effectively than trash if the system is properly designed.

In early 2006, Senate Bill 225 (SB 225) was introduced in the Delaware Senate. It established a framework for a statewide curbside recycling system, established a Recycling Fund to help pay for recycling programs, banned yard waste from disposal (providing for development of yard waste management facilities), established statewide recycling goals, and established the RPAC. The Governor's Office, DNREC, DSWA, and the RPAC all supported SB 225. The Bill did pass the Senate with amendments but it was tabled in the House of Representatives.

In October of 2005, DNREC Secretary, John Hughes, established the Solid Waste Management Technical Working Group (SWMTWG) pursuant to a directive from Governor Minner. It was comprised of individuals with technical backgrounds, financial backgrounds, and/or experience with municipal solid waste management systems and technologies. The SWMTWG was tasked to perform a feasibility review of municipal solid waste management alternatives and to recommend a program or programs that would best serve Delaware's municipal solid waste management needs. In April of 2006, the SWMTWG produced a report that recommends the state implement effective source reduction and recycling programs and building a processing facility.

The Citizens Solid Waste Solutions Commission (CSWSC), an organized group of environmentally conscious citizens, also produced a report in 2006. They called for more convenient and cost-effective recycling programs, better processing facilities for recyclables and discards, opposition to incineration, and a more focused recycling agency than the DSWA. They argued that recycling is an issue of resource management rather than one of waste disposal.

The City of Wilmington initiated a single-stream curbside recycling trial for over 6,000 households in the Summer of 2006. The City partnered with RecycleBank, a recycling company based in Philadelphia, to provide the service. RecycleBank provided wheeled recycling containers, retrofitted Wilmington's trucks to service the containers and weigh the material, provided various data reports, and provided outreach and education about the program. Through the RecycleBank program, participating households earned up to \$35 per month in RecycleBank Dollars which could be redeemed at stores of the customer's choosing. The incentive

encouraged residents to recycle and helped Wilmington to divert waste from the landfill. The recycling rate in Wilmington's trial areas went from almost zero to about 35% in about six months. In 2007 the program was expanded citywide.

In September of 2006 Governor Minner signed Executive Order 90, which replaced Executive Order 82 and re-established the RPAC. Executive Order 90 increased the membership of the RPAC by two public members. It also increased the former recycling diversion rate goal from 30% of residential solid waste to 51% of municipal solid waste.

The Cherry Island Landfill permit was renewed in 2006 with language that required the DSWA to ban yard waste from entering the landfill no later than January 1, 2007. After dozens of community meetings, a legislatively mandated delay in the ban, and the opening of three community yard waste demonstration sites, DNREC and the DSWA began enforcement of the ban on January 24, 2008.

House Bill 159 (HB 159) was introduced in 2007 and would have encouraged recycling via a comprehensive recycling grants program while discouraging disposal via a \$3 per ton assessment on landfilling. In May of 2008, HB 159 passed in the House of Representatives but was defeated in the Senate in June of 2008.

Starting in January of 2008, Kent County provided single-stream recyclables collection to residents serviced in their trash districts. This increased the number of Delaware households participating in recycling by over 11,000.

In early 2008, the DSWA converted their recyclables collection programs to single-stream. Participants no longer needed to separate traditional recyclables (i.e. glass bottles, cans, plastic bottles, mixed papers) by material type. As a result, recycling became more convenient and easier for people to participate. Other entities, including some waste haulers, also began to offer single-stream recyclables collection service.

In June of 2009, House Bill 201 was passed by the General Assembly on the last day of session. It essentially repealed the Delaware Beverage Container Law (or Bottle Bill), and removed the deposit and redemption system related to beverage containers. Governor Markell vetoed House Bill 201 in July of 2009, on the grounds that it would have a negative impact on recycling and offered no viable alternative.

In December of 2009, Peninsula Compost Company, LLC completed construction of the Wilmington Organic Recycling Center near the Port of Wilmington. This composting facility is approved to accept and process up to 160,000 tons of yard waste, wood waste, food waste, hatchery waste, and animal bedding into compost annually.

In February 2010, Governor Markell signed Executive Order 18. This Executive Order set goals in the following categories for the executive branch of state government: energy conservation/efficiency, LEED green building practices, renewable energy, reduced transportation impacts, recycling diversion (75%), and environmentally preferable purchasing.

In April 2010, the DSWA updated its Statewide Solid Waste Management Plan (SSWMP). The SSWMP calls for many waste reduction strategies, several of which required action from government and businesses.

In May 2010, Blue Hen Organics opened a 46-acre composting facility in Frankford to the general public. This facility is approved to accept and process 57,000 tons of yard waste, wood waste, food waste, hatchery waste, and chicken litter into compost annually.

On June 8, 2010, Senate Bill 234 (the Universal Recycling Law) was signed into law. This legislation passed after significant input from many stakeholders and coordination from the Governor's Office. It transitioned Delaware out of a flawed beverage container deposit system into a comprehensive recycling system. It also legislatively created a reformed RPAC.

On January 1, 2011, the Central Solid Waste Management Center (Sandtown Landfill) and the Southern Solid Waste Management Center (Jones Crossroads Landfill) stopped accepting yard waste mixed with trash. DSWA and DNREC agreed to permit conditions that restricted yard waste in July of 2010. All three DSWA landfills now ban yard waste.

By September 15, 2011, all single-family households with household trash collection, and many bars and restaurants, were provided with single stream, curbside recycling collection services.

In December, 2011, DSWA's Board of Directors approved staff to enter into agreements with the recycling company ReCommunity (to recycle municipal solid waste recyclables) and with Revolution Recovery (to recycle construction and demolition recyclables) at the Delaware Recycling Center (DRC) in New Castle.

In January, 2012, the DSWA, in partnership with Dart Container Corporation, began a pilot program to collect clean, #6 polystyrene foam (i.e. Styrofoam) for recycling at the DRC in New Castle. The program expanded to a second collection location at the Milford Transfer Station in February, 2012.

On March 1, 2012, Blue River Resources, LLC was granted a permit to operate a materials recovery facility (MRF) to separate paper, cardboard, plastic, metal, and glass for recycling. The facility is permitted to accept approximately 216,000 tons of recyclable waste materials per year. As of October 2012, the new MRF was 75% operational.

On March 17, 2012, non-profit organization Eden Delmarva launched the REPLENISH project with DNREC's assistance. The Sussex County-based project encourages the recovery of organic materials from 23 local restaurants to produce compost that is used at local farms. The compost fertilizes locally grown produce, which is then marketed back to the restaurants.

In April 2012, Revolution Recovery began accepting construction and demolition materials for recycling at its 42,000-square foot facility at the DRC.

In May 2012, the DSWA announced a 20-year agreement with ReCommunity to operate an automated materials recycling facility (MRF) at the DRC. State-of-the art sorting equipment will be housed in an existing building, and will process recyclable aluminum, plastics, paper, cardboard, tin and glass collected from throughout Delaware.

Spring and summer 2012 showed increased activity and awareness of recycling issues within the General Assembly. Senate Joint Resolution 8 established a strategy committee to study carpet recycling, and to report back to the General Assembly with a 10-year carpet recycling strategic plan. Senate Resolution 24 called for DSWA, DNREC, and the Zero Waste Working

Group develop a plan and proposed legislation to address single-use plastic shopping bags by January of 2013.

Between May 1, 2012 and April 1, 2013 the multi-family grants were completed. The grants funds awarded were for the capital costs of providing multi-family collection equipment and outreach and education materials.

In June of 2013 the grant contracts awarded during the third cycle of grant funding were signed. This grant cycle focuses on commercial recycling and awarded nearly \$1.4 million to a mix of fifteen different municipalities, waste haulers, private businesses and not-for-profit entities.

On May 3, 2013 Carpet Recycling Strategy Committee issued its report called for under Senate Joint Resolution No. 8. In summary the report concluded the Committee was unable to reach consensus on recommendations on how to increase carpet recycling in Delaware with a goal of having 100% of all carpet removed in Delaware be diverted to a carpet recycling. When the full Recycling Public Advisory Committee (RPAC) reviewed this report, it suggested that Delaware revisit the status of carpet recycling in another two years. At this point, Delaware will have better data on carpet diversion and recycling due to the reporting requirements in the Universal Recycling Law and the RPAC will be moving its efforts from residential solid waste to construction and demolition waste.

Between July 2012 and January 2013 the Zero Waste Working Group, which included members that represented industry, retailers, DSWA, DNREC, recyclers, and several environmental groups, met monthly to discuss and to present draft legislation that would lead to more effective plastic bag management in Delaware. The group did achieve consensus on a number of points including: fugitive plastic bags are a problem for infrastructure and wildlife in Delaware and education will be a part of any plan to reduce plastic bag waste. However, the group had divergent views and did not agree on any legislative recommendations. Some members independently lobbied to introduce a bill to continue the At-Store recycling program. This bill passed the House last legislative session and is expected to be introduced to the Senate this coming session.

Between November 1, 2012 and October 31, 2013 nineteen outreach and education training events were held throughout the state in reference to grant opportunities, the implementation of commercial recycling and general recycling outreach and education. For a detailed list of these events see Table 7 in section 6 of this report.

On August 29, 2013 ReCommunity held its grand opening ceremony. The opening of a state-of-the-art Materials Recovery Facility marks a recycling milestone for the State of Delaware. With the opening of this facility Delaware now possesses the capability to separate and market its own recyclables. As a result, not only are the profitability of these valuable resources maximized, dozens of valuable local jobs are also created in the process, and \$15 million in construction costs were added to the local economy. This chapter in Delaware's recycling history is possible as a result of the high diversion of recyclables afforded by the state's Universal Recycling law. ReCommunity and DSWA should be commended for their partnering efforts.